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PRICE VARIATIONS IN MOZAMBIQUE

DRAFT REPORT

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Acronyms

AMA	Associação Moçambicana de Avicultores
CAE	Confederação das Associações Económicas de Moçambique
CIF	Cost, Insurance and Freight
CIM	Companhia industrial da Matola
CIMPAM	Companhia de Processamento Industrial de Milho
CPI	Consumer Price Index
DNA	Distribuidora Nacional do Açúcar
DNSV	Direcção Nacional dos Serviços Veterinários
GCR	Global Competitiveness Report
GDP	Gross Domestic Product
MIC	Ministry of Industry and Commerce
MOBEIRA	Moagem da Beira
ROE	Return on Equity
SADC	Southern African Development Community
SOCIMOL	Sociedade Comercial e Industrial de Moagem
UGC	União Geral das Cooperativas Agrícolas e Pecuários
USAID	United States Agency for International Development
USD	United States Dollar
VAT	Value Added Tax

Executive Summary

Since the end of the civil war in 1992 and subsequent liberalization policies in Mozambique, shoppers from Maputo have regularly made the 200 kilometer trip to Nelspruit to stock up on groceries, clothes, and other household needs. This is despite the fact that supermarkets of South African origin have since opened shop in Maputo, offering similar varieties of products. This study examines why this may be.

Specifically, we examine possible sources of difference in prices between Maputo and Nelspruit for eight food products—sugar, chicken, tomato, maize flour, cooking oil, tomato paste, baked beans, and tuna. Of the eight, five are staple food products and three are processed. Our study focuses in particular on supermarket prices of these commodities in Nelspruit and Maputo—comparing the same brand of products sold in the same or comparable supermarkets in the two cities. We have picked three supermarkets that operate in both cities—Shoprite, SPAR, and Game—for this price comparison. As South Africa is an important import partner for Mozambique, difference in prices for most food products can be explained in terms of border taxes, transportation costs, customs fees and delays, and retail markup. In one instance—chicken—where there does not appear to be a supply chain relationship between South Africa and Mozambique, we take a slightly different approach of building up prices in the two cities by comparing border taxes, transportation costs, custom fees and delays, and retail markup for frozen chicken imported from Brazil.

We find that prices in Nelspruit are consistently lower for all brands of the eight commodities considered. Nominal price differences, inclusive of VAT, ranged from a low of about 16 percent for maize flour (Iwissa) to a high of 48 percent for brown sugar (Sunny Brown from Swaziland). Prices were observed to be lower in Nelspruit, even for the same brand of commodity sold at the same supermarket chain in Maputo. The difference in prices did not seem to be related to whether the commodity is a staple food product, or is pre-processed.

Our analysis finds that retail and wholesale markup constitutes the biggest element of the price differential for almost all commodities. Sales markup accounted for about 53 percent of the price difference in the case of maize flour to about 92 percent of the price difference in the case of tuna. Sales markup appears to be higher for processed food products than for staple food products. This is likely due to several reasons. First, the profit margins for the five staple food products chosen for this study are regulated under Decree 56/2011, which restricts maximum allowable profit margins for wholesalers and retailers each. Second, the domestic industry for processed food products is at its nascent stage, if not non-existent. Imported processed foods are the only source of supply and hence, prices for processed food products are higher. We utilize the provisions on allowable profit margins in Decree 56/2011 for the case of sugar, tomato, maize flour, and cooking oil to unpack the retail markup for these commodities. Profit margins and operating costs thus estimated fully explain the price differences in all but two commodities—sugar and cooking oil, where residuals of 15 percent of the price difference and 10 percent respectively are due to factors other than import duties, custom fees, transport costs, profit margins, and operating costs. A summary of the price differential between Maputo and Nelspruit is show in Table A below.

Table A: Summary of Price Differential

Commodity	Observed Price Differential (in MT)	Proportion of Price Differential		
		Moving goods to Maputo	Wholesale & retail markups	Unaccounted Residual
Sugar	24.83	30%	55%	15%
Maize Flour	18.16	47%	53%	0%
Chicken	51.33	-	-	-
Tomato	24.61	35%	65%	0%
Cooking Oil	34.50	29%	61%	10%
Baked Beans	15.60	19%	81%	N/A
Tomato Paste	31.36	11%	89%	N/A
Tuna	38.39	8%	92%	N/A

Source: Author's data collection and calculations. Further details are available in Tables 9-16 in Section 5.

We observe high markups even for food products that are regulated under Decree 56/2011. For food products such as tomatoes and maize flour, where imports face competition from the domestic market, markups are slightly lower than the maximum allowable wholesale and retail markups. For other commodities such as cooking oil, supermarkets are able to potentially apply the full markups allowed for both warehouses and retailers, if their procurement systems are structured appropriately. The presence of high markups even for regulated commodities seems to indicate lack of enforcement of the Decree. Interviews with MIC confirm that there is indeed a capacity constraint to effectively collect and analyze industry data to be able to enforce the Decree and penalize non-compliant retailers.

High prices in Maputo also indicate other market conditions. In the case of sugar, the body representing sugar producers in Mozambique—DNA—is the sole importer of refined sugar into the country. This monopoly allows for uncompetitive behavior and resultant hikes in prices. Processed foods, for instance, have no competition from the domestic market as agro-processing and manufacturing industry in Mozambique is at its very nascent stage—allowing supermarkets to charge a higher markup for these food products which are typically consumed by high-income groups. In the case of maize flour, the northern and central regions—which are surplus maize producing zones—export to neighboring countries like Malawi but not to the South zone—a net deficit zone for maize—because of lack of intra-country transport infrastructure. Maize flour is more expensive in Mozambique, even when prices of imported maize grain are comparable with other African countries, reportedly because of high milling costs. Finally, our study suggests a need for improvements in the country's business and regulatory environments. Problems such as high costs of getting credit, or paying taxes, invariably get transmitted to the final price of a consumer good. In addition, regulations and mandates that perpetuate market inefficiencies in order to protect an industry do so at the cost of the consumer.

Examining price differences between Maputo, Beira, and Nampula, we find that there are no differences in prices of food products between Beira and Nampula, except for the prices of tomatoes, which is the only seasonal food product. Prices between Maputo and Beira, and between Maputo and Nampula were observed to be different in most instances by the exact amount. Maputo prices were higher for all products, except tomato and chicken, ranging from 7 percent for maize flour (TopScore) to 40 percent for Sunny Brown sugar. Price differentials between the three cities are not as significant as they are between Nelspruit and Maputo.

1. Introduction

For over a decade, shoppers from Maputo have regularly trekked to the Riverside Mall and adjoining shopping centers of bordering city Nelspruit in South Africa to buy basic commodities, such as tomatoes, chicken, furniture, clothes, and the like. Despite the cost of cross-border travel and a growing number of large retailers—mainly of South African origin—opening centers in Maputo, this shopping behavior is far from reversed due to persistent cross-border price differences for the same commodities.

The law of one price states that prices of the same commodity in different countries should be equal when measured in the same currency, assuming no barriers to trade, no cost in trading and perfectly functioning markets. In practice, price variations inevitably arise when goods move across borders due to trade costs, barriers to trade, and possible market imperfections. It should be possible, though, to reasonably explain these variations by examining the additional costs in the importing country that get transmitted to the final consumer, such as import duties, transportation costs, storage, relevant fees and taxes, and exchange rate variations, possibly in combination with differences in market power due to competitive conditions in each location.

The high price differences between South Africa and Mozambique—specifically between Nelspruit and Maputo—raise interesting questions for several reasons. First, the two cities are only about 200 kilometers apart and therefore presumably have relatively low transportation costs. Second, a number of large retailers operating in Nelspruit also have outlets in Maputo, and utilize similar, if not the same, distribution networks and supply many goods that are identical. Third, a large number of informal cross-border traders, *mukheristas*, operate in Mozambique who supply goods from Nelspruit to Maputo (among other trans-border cities), presumably helping to equalize prices by increasing supply responses and putting a limit on market power for the larger retail chains.¹ Fourth, in 2015, Mozambique will eliminate most of its tariffs for goods being traded with South Africa in compliance with the SADC protocol. If these price differences stem from a systemic weakness in Mozambique's economic competitiveness, the country will have to ramp up its efforts to boost competitiveness, especially as its extractive industries are set to boom in the next few years.

This study examines the causes of these price variations, focusing particularly on basic food commodities sold in large supermarkets that operate both in Nelspruit and in Maputo. It also illustrates price differences that exist between three major markets within Mozambique—Maputo, Beira, and Nampula. The main conclusion from this analysis is that retail and/or wholesale markups constitute the majority of the difference in prices of most commodities between

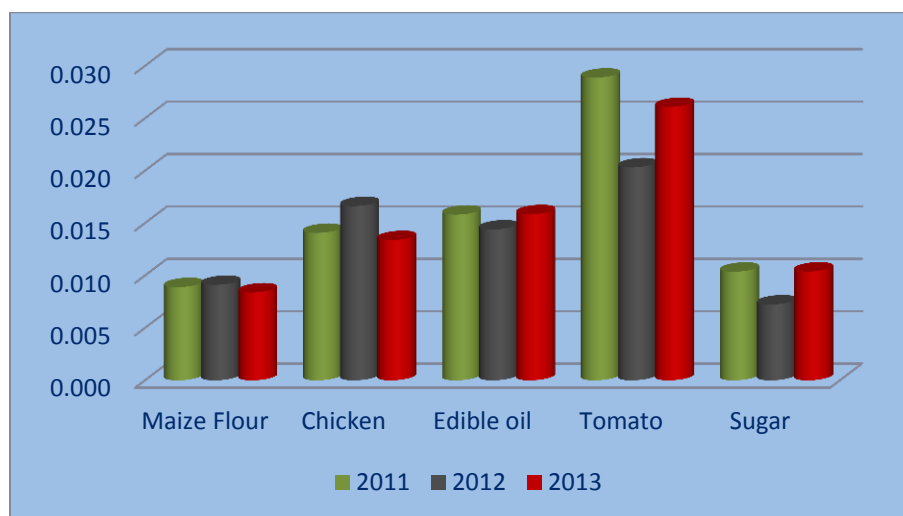
¹ *Mukheristas* are also reportedly the primary source of smuggled commodities, such as cigarettes, fruits, and vegetables into South Africa. While only a small proportion of *mukheristas* may smuggle goods across the border, the informal nature of these traders allow them to operate much more efficiently under the radar, lending their business model quite well to various forms of smuggling.

Nelspruit and Maputo, and points to underlying inefficiencies in the domestic market for the eight commodities. The analysis also suggests a need to improve the regulatory environment so that regulations do not perpetuate market inefficiencies at the expense of consumers.

METHODOLOGICAL APPROACH

To examine price differences, this study looks at eight food products, chosen in consultation with USAID, CAE, Ministry of Trade and Industry (MIC), and the National Directorate of Customs. The selected food products are: sugar, chicken, maize flour, tomato, cooking oil, baked beans, tomato paste, and tuna. Of these, five are staple food products, and three are pre-processed. As illustrated in Figure 1, the five staple food products constituted more than 7% of the total weightage of the average Consumer Price Index (CPI) of Maputo, Beira, and Nampula (MABENA) in 2013.² The study also examines three pre-processed products since Mozambique's food processing industry is relatively nascent and Mozambique is heavily dependent on imports of these products, primarily from South Africa.

Figure 1: Selected Staple Food Products Weight in the MABENA CPI



Source: INE, National Institute of Statistics

To allow comparability of products across supermarkets and between cities, the study analyzes homogeneous products with the specifications listed in Table 1 below. Price observations for food products with these specifications were collected in Maputo and Nelspruit, as well as in Beira and Nampula within the course of one week in September 2014. As time-series price data—particularly supermarket price data—on these products is not available, price comparisons were made using the spatial observations. Monthly time-series data for the staple food products—sugar (white or yellow), chicken (frozen), maize flour, tomato, and cooking oil—is available through INFOCOM at the MIC. These were used to compare prices over time within the three cities in

² Food and non-alcoholic beverages in general constitute more than half of the country's consumer basket for the calculation of the CPI.

Mozambique, to determine whether there were any observable price transmission mechanisms in the form of co-movements of prices.

For some products, such as tomato paste, and maize flour, a number of brands existed in both Nelspruit and Maputo with these specifications. For others, like chicken, the only common brand that appeared on supermarket shelves in both cities was Spar. We demonstrate price differences by brands for the eight food products in the next section.

Table 1: Specifications of Food Products

Food Product	Sub-Category	Unit of Measurement	Measurement
Sugar	Brown Sugar ³	Kilogram (Kg)	1
Chicken	Whole Frozen Chicken	Kilogram (Kg)	1.1
Maize Flour	White	Kilogram (Kg)	1
Tomato	Fresh Tomato	Kilogram (Kg)	1
Cooking Oil	Canola Oil	Liter (L)	1
Baked Beans	In tomato sauce	Gram (g)	410
Tomato Paste	Canned	Gram (g)	400
Tuna	Canned in vegetable oil	Gram (g)	170

The study analyzes prices of selected products in three large retail supermarkets—Shoprite, Game, and SPAR. These supermarkets are three of about ten large supermarkets currently operating in Mozambique, and were selected because they operate both in Nelspruit and in Maputo. The study focuses on urban supermarkets rather than on small retailers in some of the country's poorer areas. One may ask why? Mozambique has a gradual but steadily increasing urban population with an average annual growth of about 3.3% over the past decade. Over 30% of the country's total population is urbanized.⁴ The new large supermarkets in urban areas dominate the most dynamic segments of the food retail market—steadily increasing urban areas with larger incomes. While the majority of Mozambican consumers do not rely on supermarkets for their groceries, supermarkets represent a mechanism for the rural poor and small-scale retailers to capitalize on the dynamic urban higher-income market segment. Understanding how supermarkets procure their supplies and determine prices can suggest strategies for assisting rural producers and small suppliers to organize and tap into these supply networks. Additionally, rural households depend to a large extent on “auto-consumption”—they consume mostly from what they produce. Hence, urban households represent an even larger share of consumers for retail-level food supplies.

³ Yellow sugar, which is brown sugar with a lower molasses content, is also consumed in Mozambique, but this analysis collected data from supermarkets for brown sugar.

⁴ World Development Indicators

With the above parameters, the study attempts to disaggregate the price differences that are observed between Nelspruit and Maputo. The remainder of this paper is organized as follows. The next Section presents evidence of price differences between cities. Section 3 presents an overview of the Mozambican food retail sector, including supermarket procurement systems. Section 4 provides an overview for each of the eight commodity markets in Mozambique. Section 5 breaks down the differences in prices between Nelspruit and Maputo by commodity. Other overarching considerations that impact price differences are discussed in Section 6. The final section concludes with a summary of the analysis and possible recommendations for policy makers and other stakeholders.

2. Evidence of Price Differences

Our observations confirm the existence of substantial cross-border price differences between Nelspruit and Maputo, and to a lesser degree between Maputo and the cities of Nampula and Beira within Mozambique. Between Nampula and Beira, prices are almost identical for most of the food products examined here.

MAPUTO AND NELSPRUIT

The cross-border movement of goods and services between Nelspruit and Maputo confirms the existence of spatial arbitrage across all of the chosen food products. Traders buy in low-price location (Nelspruit) and sell in higher-price locations (Maputo). Due to the relatively short distance between the two cities, goods are hauled not only by professional formal traders, and small-scale informal traders called *mukhesitas*, but also by the average consumer for his/her individual household consumption.

The existence of such trading implies that:

1. The price difference between Nelspruit and Maputo is greater than the transfer cost, defined as the full cost of transporting the commodity from one market to another (including profit and compensation of risk for the formal trader);
2. The price difference is large enough to cover costs of trading, which includes import duties, and applicable sales tax. In the case of the formal trader, this also includes opportunity costs of custom delays, compliance with sanitary and phytosanitary requirements, etc.; and
3. For an average consumer driving a Volkswagen Golf with a fuel efficiency of 8 liter per 100 kilometer, the average roundtrip cost to and from Nelspruit is estimated to be about MT 1,731 including vehicle wear and tear, but excluding time costs or any border charges.⁵ The benefits of buying things across the border is at least as much as MT 1,731 per trip.

Table 2 presents the average prices of the eight food products selected for this study, inclusive of value added tax (VAT). Table 3 shows the average price differences with the respective VAT components removed.

Table 2: Average Price differences between Nelspruit and Maputo (inclusive of VAT)

⁵ Data are from: http://www.numbeo.com/gas-prices/city_result.jsp?country=Mozambique&city=Maputo. Accessed on 3 February, 2015.

Product	Brand	Origin	Average Price in Maputo (in MT)	Average Price in Nelspruit (in MT) ⁶	Difference
STAPLE FOOD PRODUCTS					
Chicken	SPAR ⁷	South Africa	145.00	82.77	42.9%
Tomato	ZZZ	South Africa	67.00	55.17	17.7%
Sugar	Sunny Brown	Swaziland	53.33	27.57	48.3%
Maize Flour	First Choice	South Africa	37.50	22.00	41.3%
	White Star	South Africa	40.00	21.29	46.8%
	Iwissa	South Africa	24.80	20.74	16.4%
Cooking Oil	Sunfoil	South Africa	102.88	48.15	53.2%
PROCESSED FOOD PRODUCTS					
Tomato Paste	All Gold	South Africa	73.02	41.25	43.5%
	Miami	South Africa	51.50	31.99	37.9%
Baked Beans	Rhodes	South Africa	39.14	23.72	39.4%
Tuna	John West	South Africa	92.00	53.47	41.9%

Source: Authors' Data Collection

Table 3: Average Price differences between Nelspruit and Maputo (exclusive of VAT)

Product	Brand	Origin	Average Price in Maputo (in MT)	Average Price in Nelspruit (in MT)	Difference
STAPLE PRODUCTS					
Chicken	SPAR ⁸	South Africa	123.93	72.61	41.4%
Tomato	ZZZ	South Africa	57.26	48.39	15.5%
Sugar	Sunny Brown	Swaziland	45.58	24.18	46.9%
Maize Flour	First Choice	South Africa	32.05	19.30	39.8%
	White Star	South Africa	34.19	18.68	45.4%
	Iwissa	South Africa	21.20	18.19	14.2%
Cooking Oil	Sunfoil	South Africa	87.93	42.24	52.0%
PROCESSED PRODUCTS					
Tomato Paste	All Gold	South Africa	62.41	36.18	42.0%
	Miami	South Africa	44.02	28.06	36.2%
Baked Beans	Rhodes	South Africa	33.45	20.81	37.8%
Tuna	John West	South Africa	78.63	46.90	40.4%

Source: Authors' Data Collection

⁶ Converted from South African Rand using the spot exchange rate on the day that data was collected (Friday, September 12, 2014)

⁷ While the same brand chicken were available in both markets, Shoprite and Game only sell chicken imported from Brazil or locally produced in Mozambique, while in Nelspruit, only locally produced chicken were sold. As SPAR sells chicken of South African origin in both markets, only SPAR brand prices were compared.

⁸ Ibid.

Average retail prices in Nelspruit are consistently lower for all products and for all brands. The difference in prices (inclusive of VAT) for identical products is as high as 53% for the Sunfoil brand of canola oil and as low as 16% for Iwissa maize flour. Price differences for near substitutes—in this case, different brands of the same product—are observed to be as high as 56% between All Gold tomato paste in Nelspruit and Miami tomato paste in Maputo. Price differences are slightly smaller excluding VAT because the tax rate is slightly higher in Mozambique (at 17%) than in South Africa (at 14%). The size of the price difference does not appear to be related to whether the product is a staple commodity or is processed.

Two points in Table 3 warrant additional note. First, the average difference in prices for tomatoes (excluding VAT) is about 16%. However, the period during which our data was collected (September-October) marks peak tomato production season in Maputo. The difference in prices is likely to be significantly larger during other seasons. Second, the difference in average sugar prices is about 47%. This is despite the fact that Mozambique is a net sugar exporter with a sugar trade balance exceeding USD 171 million,⁹ and sugar exports constituting about 4% of its total exports in 2013.¹⁰ One would expect, therefore, to see competitive sugar prices in Mozambique. The reason this is not so will be discussed in sections 4 and 5 below.

Without exception, differences in prices are observed across the border for the same commodity, even for the same retailer in both cities. This is so even for cases, such as SPAR, where the distribution network that supplies a supermarket in Nelspruit is the same one that supplies the respective retail store in Maputo. This signals added costs for moving goods across the border, but it may also point to large differences between Nelspruit and Maputo for operating costs such as electricity, water, building rental costs, labor costs, and local taxes, as well as differences in markups. Table 4 below presents the price differences observed between the same supermarket chain in the two cities, for particular cases where identical items were found on the shelves.

Table 4: Price differences by Supermarket Chain, inclusive of VAT

Product	Brand	Origin	Shoprite	Game	SPAR
Chicken	SPAR	N/A	-	-	-
Tomato	ZZ2	South Africa	30%	-	-
Sugar	Sunny Brown	South Africa	-	-	-
Maize Flour	First Choice	South Africa	-	-	-
	White Star	South Africa	-	56%	-
	Iwissa	South Africa	13%	-	-
Cooking Oil	Sunfoil Canola	South Africa	57%	30%	-
Tomato Paste	All Gold	South Africa	-	42%	32%
	Miami	South Africa	-	30%	-
Baked Beans	Rhodes	South Africa	56%	7%	-

⁹ International Trade Center, TradeMap Data (based on UN COMTRADE database)

¹⁰ Bank of Mozambique (2013)

Product	Brand	Origin	Shoprite	Game	SPAR
Tuna	John West	South Africa	42%	-	-

Source: Authors' Data Collection

The blanks in this table indicate that a given supermarket chain operating in both Nelspruit and Maputo does not always stock the same brand of product in the two cities. Of the products that had the same brand in both Nelspruit and Maputo, the highest price difference observed was for Sunfoil canola oil, for which Shoprite's price in Maputo was 57 percent higher than in Nelspruit. The lowest price difference of 7 percent was observed in Game stores for the Rhodes brand of baked beans. In all cases, however, prices in Maputo exceed those in Nelspruit, reflecting at a minimum added costs of transporting across the border.

MAPUTO, BEIRA, AND NAMPULA

Prices can also differ between regions of the same country for various reasons, including transport costs, supply sources, demand conditions, operational costs, regional taxes, and customer incomes. For instance, price of 1 liter of gasoline in Maputo averages about 51.48MT compared with 52.55MT in Beira and 56.59MT in Nampula. Similarly, the cost of basic monthly utilities (electricity, heating, water, garbage) for a 85 square meter apartment in Maputo averages about 3,800MT, compared with 3,120MT in Beira, and just 1,278.06MT in Nampula. Rental price for a 1-bedroom apartment in Maputo city center averages about 37,250, while that in Beira costs about 21,033.33MT and 20,417.94 in Nampula.¹¹ While these numbers do not relate to the direct operating costs of supermarkets in each city, they offer an insight into difference in costs of operation in these cities. Additionally, some goods are imported to Beira and Nampula via Maputo, while others are sourced to these cities directly from Zambia or from Asia.

The study examined supermarket prices of selected food products in Maputo, Beira, and Nampula. Currently, Shoprite is the only large supermarket that operates in all three of these cities. Table 5 below presents the observed differences in the Shoprite prices.

Table 5: Average Prices (in MzM) in Shoprite stores in Maputo, Beira and Nampula

Product	Brand	Maputo	Beira	Nampula	MAP-BEI	MAP-NAM	BEI-NAM
STAPLE PRODUCTS							
Chicken	Perdix	140.00		-	-	-	-
	Nacional	138.00	135.00	-	2%	-	-
	King Frango			130.00	-	-	-
Tomato	(Fresh)	59.00	25.00	32.00	58%	46%	-28%
Sugar	Nacional		37.00	37.00	-	-	0%
	Sunny Brown	42.00	59.00	59.00	-40%	-40%	0%
Maize Flour	Top Score	27.00	29.00	29.00	-7%	-7%	0%
	Super A1	22.00	26.00	26.00	-18%	-18%	0%
Cooking Oil	Fula (sunflower)	109.00	109.00	109.00	0%	0%	0%
	Sunfoil Canola	115.00	115.00	115.00	0%	0%	0%

¹¹ Data from Cost of Living in Mozambique, as given at www.numbeo.com.

PROCESSED PRODUCTS							
Tomato Paste	Primevera (400g)	29.00	29.00	29.00	0%	0%	0%
Baked Beans	Sunny	25.00	29.00	29.00	-16%	-16%	0%
Tuna	John West	85.00	99.00		-16%	-	-
	Ramirez (120g)	100.00	113.00	113.00	-13%	-13%	0%

Source: Authors' Data Collection

Average prices for four products—sugar, maize flour¹², baked beans, and tuna¹³—are lower in Beira and Nampula than in Maputo. The price of Sunny Brown brand of sugar was 40% higher in both Beira and Nampula than in Maputo. Prices of tomatoes were also 28% higher in Maputo than in Nampula. In the case of Beira, the reverse was observed for fresh tomatoes, for which the price in Maputo was 58% higher than in Beira. Two products—cooking oil and tomato paste—had the same price in all three cities.

Prices between Shoprite stores in Beira and that in Nampula were identical, except for tomatoes. This is the case even for food products that originate from outside the country, implying either that additional transportation costs to Nampula are negligible or that Shoprite is willing to accept a lower margin on the sale of the products in Nampula. The large distance between Nampula and Beira indicates the latter as Shoprite's marketing strategy.

Maize flour was at least 7% cheaper in Beira and Nampula than in Maputo. Mozambique's northern zone (where Nampula is located) is a surplus maize area, with reports of cross-border exports to Malawi and Zambia. In contrast, southern Mozambique (Maputo) is a maize deficit zone, relying either on local supply during the harvest season, or on imports from South Africa in the off-season. Improvements in transport, storage facilities, and other logistical infrastructure between the North and South zones in Mozambique could help reduce the maize price differential.

In addition to our observed price differences, we use the MIC-INFOCOM monthly time-series price data for staple food products to determine whether there are price transmission mechanisms between Maputo, Beira, and Nampula. We do this by analyzing co-movement of monthly prices. Specifically, we analyze monthly prices of domestically produced yellow sugar,¹⁴ maize flour, tomato, frozen chicken, and imported cooking oil between October 2012 and August 2014. Prices of tomatoes have the strongest co-movement in prices among the three cities.¹⁵ Tomato is a highly seasonal product, and hence the co-movements may simply be a reflection of the

¹² Data for two brands of Maize flour—Top Score, and Super A1—were collected. Both were priced lower in Beira.

¹³ Two brands—John West and Ramirez—of tuna were higher priced in Beira. Only Ramirez brand was shelved in Nampula, which was priced higher than in Maputo.

¹⁴ Brown sugar is white sugar with molasses added to it. Yellow sugar is brown sugar with a low molasses content. While the rest of the analysis focuses on brown sugar, price data from MIC-INFOCOM was only available for yellow sugar, which we have used solely for the purposes of analyzing co-movement in prices between Maputo, Beira, and Nampula. Data collected for the price differential analysis is for brown sugar only.

¹⁵ Pairwise correlation coefficient of tomato prices between Maputo-Beira is 0.57; Maputo-Nampula is 0.62; and Beira-Nampula is 0.61.

seasonality. This is consistent with the observation that prices seem to jump during the October to January months (off-peak tomato season in Mozambique), and taper off afterwards. We do not find prices of any other commodities to be correlated among the three cities.¹⁶ The price of chicken between Beira and Nampula is strongly correlated, but independent of variation in prices in Maputo.¹⁷ An analysis of percentage changes in prices showed even less correlation for all products in all three cities.

We conclude from the data that there is limited co-movement in prices between the three cities, which could result from price transmission via supply channels or as a function of seasonality for individual products. However, since price differences between Maputo and the two cities of Beira and Nampula are below 19 percent for all of the target food products except sugar and tomatoes and since prices in the three cities are not significantly correlated, we focus the remainder of the paper on analyzing the cause of price differences between Nelspruit and Maputo.

¹⁶ Correlation coefficients for all other commodities for the three cities are less than 40 percent.

¹⁷ Pairwise correlation coefficient is 0.75 between Beira and Nampula for prices of chicken. The same for Maputo-Beira is -0.18 and for Maputo-Nampula is -0.35.

3. Mozambique Food Retail Sector

Mozambique has experienced rapid growth averaging over 7% in the past decade,¹⁸ thanks in large part to a steady increase in the implementation of large infrastructure projects, including “mega projects”, government budgetary expansion, and more recently, coal production. The IMF projected an acceleration to 8.3% growth in 2014, with increasing coal production and infrastructure construction.¹⁹ Although this capital-intensive growth has not had a significant impact on employment, per capita income in Mozambique has steadily doubled from about \$302 in 2005 to \$608 in 2012.²⁰ Per capita income has tripled since the end of the civil war, as Mozambique has been one of the fastest growing economies.²¹ Incomes in city centers, such as Maputo, are growing at rates much higher than the national average, since skilled workers are concentrated in urban areas.

Rich coal deposits in the country’s western Tete province have attracted mining companies from around the globe, such as from Brazil, the United States, Italy, and China. Coal production has only recently begun, and much of the natural gas production is still at an exploration phase. As Mozambique’s nascent coal mining and natural gas sectors attract increased foreign direct investment, demand in other sectors—such as retail, financial services, real estate, and hospitality industries—is expected to progressively increase. Indeed, Figure 2 shows that commercial licensing for wholesalers, retailers and service providers is steadily increasing over the past few years, with the most rapid growth observed in the number of commercial licenses issued to retailers. According to data collected from MIC, roughly a third of the commercial licenses for retailers, more than 60 percent of the wholesale commercial licenses, and about 53 percent of the service provider licenses were issued in the city of Maputo. Maputo province, which excludes the city of Maputo, is where the largest numbers of licenses were issued (after the city of Maputo) for wholesalers, retailers, and service providers.

With the end of civil war in early 1990’s—peace accord between the ruling socialist party and anti-communist dissidents was signed in 1992, and democratic elections held in 1994—Mozambique began to experience relative economic stability. With the introduction of liberalization policies and pro-foreign investment stance, the retail sector was opened up to foreign investors. South African chain stores were the principal retail investors, as they looked to expand beyond their borders since competition in South Africa was cutting into their profitability. For example, the 2004 company report for Shoprite—the largest retailer in South Africa—stated,

¹⁸ Calculated from data available from the World Development Indicators database. Corroborated from statistics obtained from INE.

¹⁹ Republic of Mozambique: Second Review Under the Policy Support Instrument and Request for Modification of Assessment Criteria; Staff Report; Debt Sustainability Analysis; Press Release; and Statement by the Executive Director for Republic of Mozambique, International Monetary Fund, 30 May 2014

²⁰ Data from INE

²¹ The Economist, 9 November 2013,

“As Shoprite lost market share in South Africa to large competitors like Pick ‘n Pay and Spar’s flexible, new ‘action stores’, Shoprite, along with other South African retailers like Game, Steers, Debonairs, Engen, ProFurn, the J D Group and Wimpy among others, has taken its excess cash and headed for the African countries north of South African borders, extending as far as Egypt in North Africa.”²².

Figure 2: Number of Commercial Licenses Issued in Mozambique



Source: Ministry of Industry and Trade

The increased investment in retail services has been a clear signal of an improved business climate in Mozambique, particularly reforms related to starting a business. Mozambique streamlined its business registration process and improved the time it takes to start a business from about 167 days in 2005 to just 13 at present. The cost of starting a business was reduced from 112% of income per capita in 2004 to about 17%.²³ Even with the rapid expansion in the number of retail commercial licenses in the country, it must be noted that most represent small and medium retailers and their share in total retail turnover is probably not large enough to impact commodity prices.

Like other less developed regions, retailing in Southern Africa is highly diversified, ranging from informal street traders to small outlets with low turnover to larger shopping complexes.²⁴ The food retail sector in Mozambique is characterized by three distinct groups of retailers:

1. **Micro-Retailers, or “Mom and Pop” Shops.** These establishments serve a small local community, often generating just enough profit to run their operations and sustain their owners. These shops operate largely in the informal sector; many are unlicensed and

²² www.shoprite.co.za

²³ World Bank Doing Business Indicators

²⁴ Findlay (1990)

unregistered. The target consumer group for these shops are generally the poor—both in urban and rural areas. These retailers normally procure from wholesalers and/or *mukheristas*.

2. **Small- and Medium retailers.** In the Mozambican retail sector, the Indian diaspora played a major role in the development of the retail sector with many diverse and small-scale traders and retailers. This group of retailers quickly experienced competition from large multinational corporations however with the arrival of the first South African supermarkets in the late 1990's. These retailers are often registered and licensed but vary in size from a small “mom and pop” establishment to fairly large retail outlets that offer more variety and convenience. These retailers cater primarily to the lower, and middle-class consumers, and tend to be concentrated in urban areas. This group of retailers is increasingly in competition with large supermarkets and hypermarkets. These retailers normally procure from wholesalers and/or *mukheristas*.
3. **Large Supermarkets and Hypermarkets.** These supermarkets—majority of whom are of South African origin—bring brand value and enjoy economies of scale because of the scale of their operation. They offer consumers a better combination of price, variety, quality and convenience, in order to compete with other, smaller retailers, who previously dominated the market.²⁵ Their primary clientele include the burgeoning middle-class with access to more disposable income. These retailers tend to have their own centralized procurement systems, with standards placed on such things as quality, volume, consistency, packaging, and safety. Due to the scale of procurement, supermarkets all over Africa are increasingly playing a critical role in development because of their linkages, or lack thereof, with local small-scale producers. This group of retailers is the focus of the current study.

Mozambique presents ample market for retail expansion. Maputo, the country's largest retail market, is undergoing rapid transformation with many new construction projects currently underway. Many retailers are capitalizing on this opportunity by operating in tandem with property developers, opening outlets within new mall developments and shopping complexes. Every major retailer and consumer goods company has started to expand into the rest of country while trying to expand market share within the capital. For instance, food retail giant, Shoprite plans to open about 4 additional retail outlets in various cities of Mozambique in the next year; Game is planning to open another outlet at Matola in 2015. The extractive industries in the Tete province make it an obvious choice for expansion. Many large retailers are viewing the entire country as a big investment opportunity. Some retailers have started applying innovation for outreach and sales. Facebook, for example, is becoming a powerful new sales channel for major retailers serving as a means to advertise promotional prices, new arrivals, and a platform to connect directly with customers.

As many retailers enter the business, increased competitive pressure will drive them to invest heavily in operational efficiency, improving customer service, and quality of products offered, in

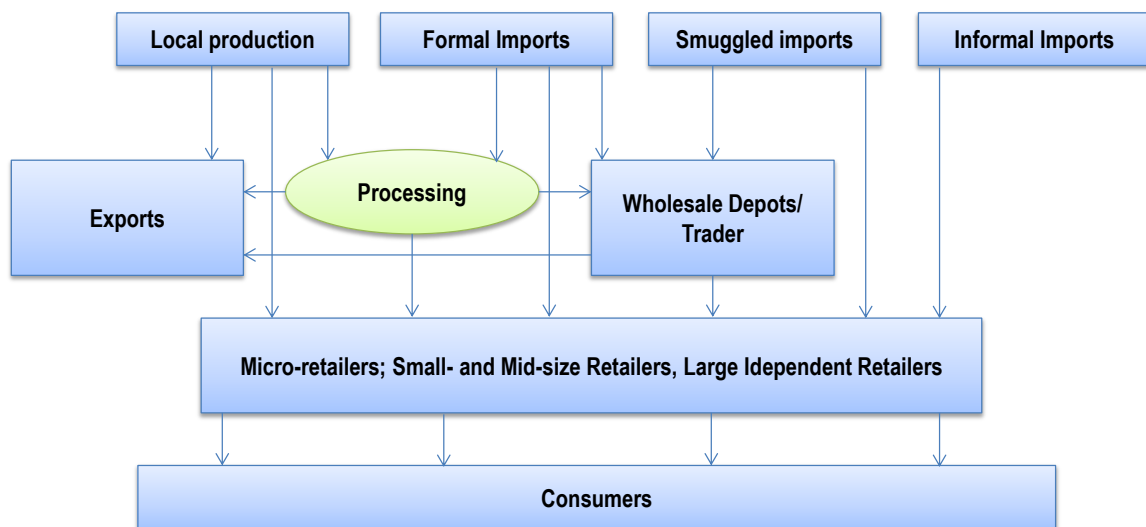
²⁵ Weatherspoon, et. al. (2003), p. 3.

addition to competitive prices. This means increased investments in technology and logistics, automated systems and kiosks, among other things. So far though, the retail sector—particularly the supermarket retail market—in Mozambique remains far from perfectly competitive. Only about 10 or so supermarkets currently operate in Mozambique. Incidental reports of expired products on the supermarket shelves have been reported, as well as poor service delivery. Supermarkets are heavily concentrated in major cities, but are thin in the rest of the country.

GENERAL RETAIL SUPPLY CHAIN

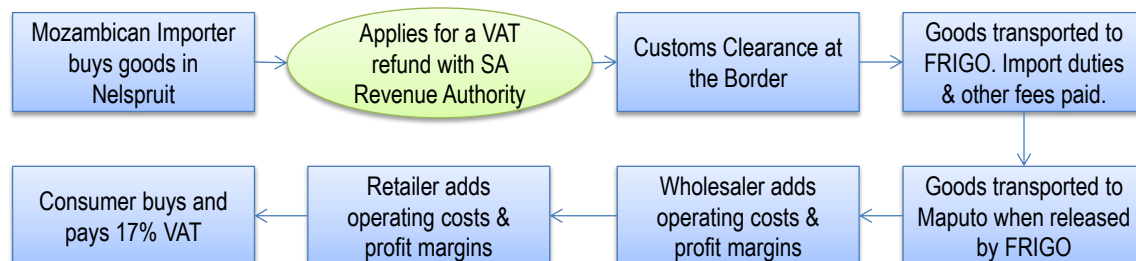
The food products supply chain connects three main sectors: primary producers, food processors, and distribution networks (wholesale and retail). The eight food products selected for this study pass through, to varying degrees, a series of intermediate steps before they are sold to consumers. Examination of the respective supply chains is essential to understanding how prices are formed via different nodes, where interactions between firms take place, and where different regulations may have an impact. In the next section of this report, we will look into each commodity in detail. Here, we start with a broad overview of how retail supply chains work in Mozambique, followed by a look at the supermarket supply chain in particular. Figure 3 illustrates a simple retail supply chain.

Figure 3: Simple Illustration of General Retail Supply Chains in Mozambique



While simplistic, Figure 3 illustrates the various channels through which products may pass from the producer or importer to the consumer, and the various nodes at which costs may be added to the final product. It also illustrates the various chains that may be influenced by public policies or regulations.

Focusing on imported goods, in our case from Nelspruit to Maputo, Figure 4 depicts the process of importing goods and the types of costs associated with importing from South Africa.

Figure 4: Importing Goods from Nelspruit to Maputo

The final price of a product imported from South Africa at a minimum reflects additional costs, as illustrated above, such as import duties, the costs of delays at the border, transportation and transport insurance, storage, wholesaler and/or retailer operating costs and profit margins.

Once goods arrive at the border for entry into Mozambique, clearance for shipments that exceed USD500 in value takes place at Frigo, international road transport terminal (also known as TIRO). From the Ressano Garcia border, where the truck driver presents the customs document, goods are transported to Frigo offices, about 80 km from the border.²⁶ Depending on the type of cargo, trucks may be transported under customs control to avoid freight being offloaded on the way. In Frigo, trucks can be offloaded and made to wait for the custom clearance to be completed. Our interviews have confirmed that importers spend 3-5 days at the border (often referred to as the “4 kilometer border”) and an additional 5-7 days at Frigo, adding to the transport costs that will be passed on to consumers. Once goods are cleared from customs, further transportation and storage costs are added on. The final price also includes wholesale operating costs and profit margins and/or retail markups. At the point of sale, the customer also pays the 17% Value Added Tax (VAT) for all food products, other than maize flour which is zero rated under the VAT schedule.²⁷

Of course some of these costs are not incurred by smugglers and informal traders, such as *mukheristas*, who evade customs duties and VAT at the border. They arguably pay an implicit tax in the form of bribes to Customs officers. They also avoid delays at customs Frigo, while the goods are being inspected and released. As the quantity of imports for an individual *mukherista* is much lower, he/she can also transport goods to Maputo relatively cheaply by either using public transportation or sharing costs with other *mukheristas*. The goods supplied by *mukheristas* therefore, may be relatively cheaper but may lack the volume or consistency required by larger retailers, and come with associated risks of trading informally.

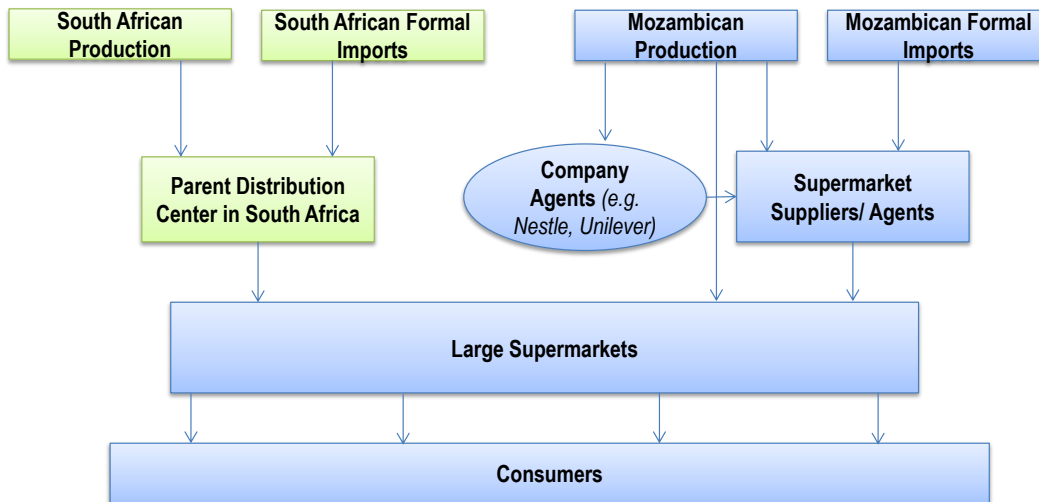
²⁶ Starting on 20 September 2014, a new Frigo was started about 4 kilometers from the border with the aim to reduce import processing time. Currently, goods go through the “4KM” Frigo, but also stop at the old Frigo to be cleared.

²⁷ “Helping you navigate Africa’s VAT landscape: Overview of VAT in Africa 2011” PwC report.

SUPERMARKET PROCUREMENT SYSTEM

Large supermarket chains, however, tend to have their own supply networks and procurement systems. Literature in this area, particularly for Mozambique, is thin. However, Figure 5 below illustrates how large supermarkets in Mozambique (with parent companies in South Africa) procure their goods, based on our interviews with their distributors and managers.

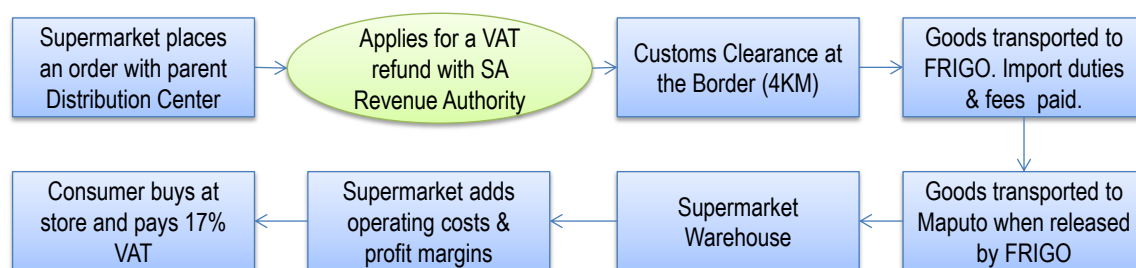
Figure 5: Stylized Illustration of Supermarket Supply Chain in Mozambique



Supermarkets in Mozambique with South African origins have their parent distribution centers in Nelspruit, Johannesburg, Cape Town, or Durban, from where the bulk of their supplies originate. These distribution centers cater to supermarkets in South Africa as well as in Mozambique, and supply goods that are produced in South Africa or are imported to South Africa. Supermarkets in Mozambique also procure some of their supplies from Mozambican producers. For instance, Game procures chicken from Mozambican agents during peak times (November-December) but imports them directly from Brazil during the off-season. The Mozambican agents get their supplies either directly from local producers (such as *Nacional*) or distributors and wholesalers. In addition, national representatives of some multi-national companies, such as Nestle, Unilever, and others cater their products to supermarkets directly in Mozambique. Whether goods are imported from South Africa or procured locally varies by supermarket and by commodity. Game, for instance, does not procure any of its fruits and vegetables locally. Shoprite, on the other hand, has direct contracts with at least 15 farm producers for tomatoes that supply about 3 tons of tomatoes per week to the 7 Shoprite stores in the country's South zone.

Large supermarkets do not procure directly from informal traders or wholesalers. When procuring locally, they either buy from producers directly (Shoprite and tomato producers) or through Mozambican agents. Their procurement prices, therefore, are presumably higher than prices of other small retailers who get a large part of their supplies from informal traders in Mozambique. We will review the procurement channels and prices for each commodity separately in the next section. For procuring from the parent company's distribution center in South Africa, large supermarkets follow similar importing channels as other retailers in Mozambique, as illustrated in Figure 6 below.

Figure 6: Supermarkets Procuring Goods from SA Distribution Center to Maputo



Based on our interviews, trucks arriving at the border spend about 3-5 days at the border and an additional 5-7 days at Frigo. The delays at the 4KM border are caused by several factors, including the sheer volume of vehicles crossing the border, systemic malfunctions, paperwork delays, and unavailability of key signatories. Once cleared from the 4KM border, trucks generally pass through Frigo near Maputo in a day. However, if selected for inspection, they can remain at Frigo for another day or two. Importers can apply for a special authorization for perishable goods, such as dairy, fruits and vegetables, so goods can be cleared from the 4KM border as well as from Frigo within a day. Clearance of paperwork can proceed after the perishables have been delivered to their final destination.

Some supermarkets such as Shoprite have warehousing facility, where goods arrive for dispatch to its various stores. Other supermarkets have the goods delivered straight to their stores after customs clearance. Storage facility is a constraint for the supermarkets, since the costs for establishing storage facilities in Maputo are steep due to high real estate and rental costs, the latter of which can be as high as four times the cost in Nelspruit (see table 17 in section 5). Theft and power outages are common. In some cases, the preference of the supermarkets has been to procure goods from local agents, since this cuts down on storage costs.

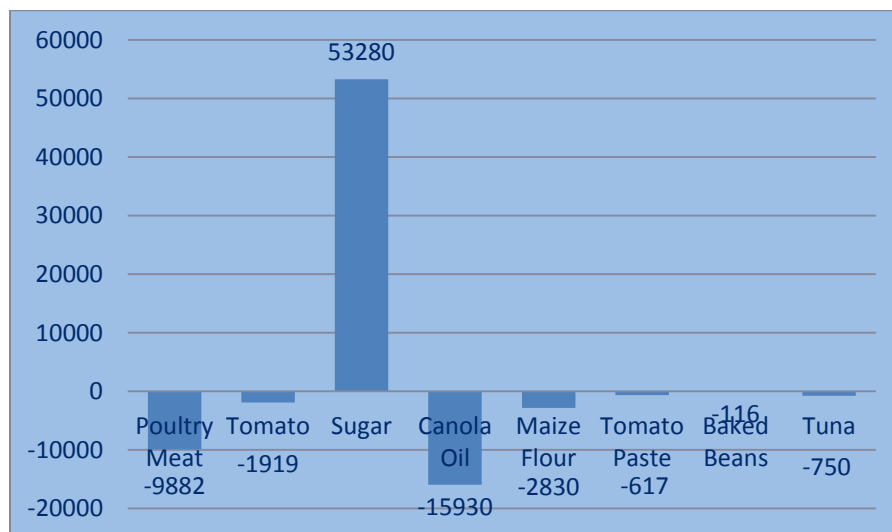
Of course, supermarkets in Nelspruit also incur transportation and handling costs to move goods from their distribution centers to the retail outlets, as well as customs charges for any imported goods (such as frozen chickens from Brazil). Only the differential between these costs in Nelspruit versus Maputo enters into consideration for explaining the difference in retail prices for identical goods in the two cities.

Also, it must be recognized that the cost of getting goods from a distribution center in Nelspruit to the retail shelf in Maputo is only relevant to explaining the observed retail price differences in the case of products for which imports from South Africa are the marginal source of supply to the supermarkets in Maputo. If this is not the case, then the analysis has to focus on other factors, as discussed below in Section 4 and 5.

4. Overview of Commodity Markets

The eight food products selected for this study—sugar, maize flour, chicken, tomatoes, cooking oil, baked beans, tomato paste, and tuna—operate with supply chains that differ from one another in terms of their dynamics and governance structures. The extent of these differences—as well as their commonalities—has implications for the size of the retail price differential between Maputo and Nelspruit. For instance, Mozambique is a net importer of all of these products except for sugar (See Figure 7). Maize is produced in surplus in the country’s central and north zones, but the South is a maize-deficit region due to lack of commercial integration with the rest of the country. Nonetheless, the volume of demand in the south contributes to the country being a net importer of maize. Also, the government has provided certain incentives for the production of some commodities but not others.

Figure 7: Average Trade Balance of Selected Products (2004-2013), USD



Source: International Trade Center, TradeMap Data (based on UN COMTRADE database)

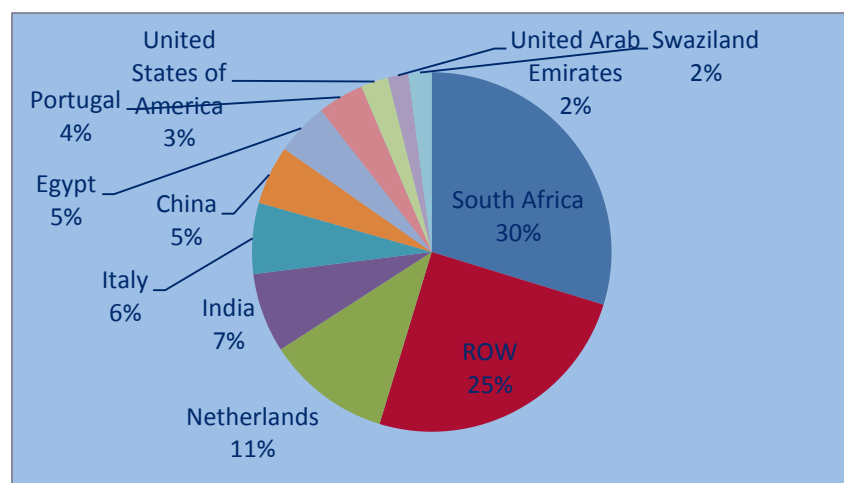
Despite changes in Mozambique’s trade patterns over the past decade, South Africa remains Mozambique’s most important bilateral trade partner. In 2003, a quarter of Mozambique’s total trade was with South Africa, and remained at about 30 percent a decade later in 2013 (Figure 8). During the same period, trade with Netherlands fell from 26 percent to just 11 percent, while trade with China and India grew from 2 percent and 3 percent respectively to 5 percent and 7 percent, respectively.

Exports to South Africa accounted roughly a third of Mozambique’s total exports in 2013, and imports from South Africa comprised about 22 percent of the country’s total imports.²⁸ Excluding

²⁸ International Trade Center, TradeMap Data (based on UN COMTRADE database)

mineral fuels, oils, and distillation products, South Africa accounted for nearly 42 percent of imports to Mozambique in 2013. South Africa is an important import source for all eight commodities selected for this study. Even in the case of sugar, where Mozambique is a net exporter, the majority of imports of refined white sugar come from South Africa. Furthermore, South Africa is the country of origin for most of the specific brands used in this study (see Tables 2 and 3, above).

Figure 8: Mozambique's Major Trade Partners, 2013 (Exports plus Imports)



Source: International Trade Center, TradeMap Data (based on UN COMTRADE database)

In this section, we review each of the eight commodity markets in Mozambique and unravel elements contributing to the price differences between Maputo and Nelspruit for each one.

SUGAR

Between 1992 and 2012, after the end of the civil war, the area under cane cultivation in Mozambique tripled, reaching 45,000 hectares; total sugar output has grown even more rapidly, increasing more than seven-fold during this period.²⁹ Much of the increase represents a rebound from the crisis, when sugar production fell drastically. Sugar cane and raw sugar is an important export commodity for Mozambique, whose sugar export in the last three years averaged about USD144 million, compared to just USD14.3 million a decade ago.³⁰ This makes sugar the second most important crop for exports in Mozambique, after tobacco. The sugar industry is also the second largest source of wage employment, after the public sector.

The increase in sugar production has been driven largely by the increase in area of cultivation, due to rehabilitation of the country's four major sugar companies, each with their own plantations and mills. These companies—Marromeu, and Mafambisse (in Sofala province), and Xinavane, and Maragra (in Maputo province)—are majority privately owned. The Mozambique government

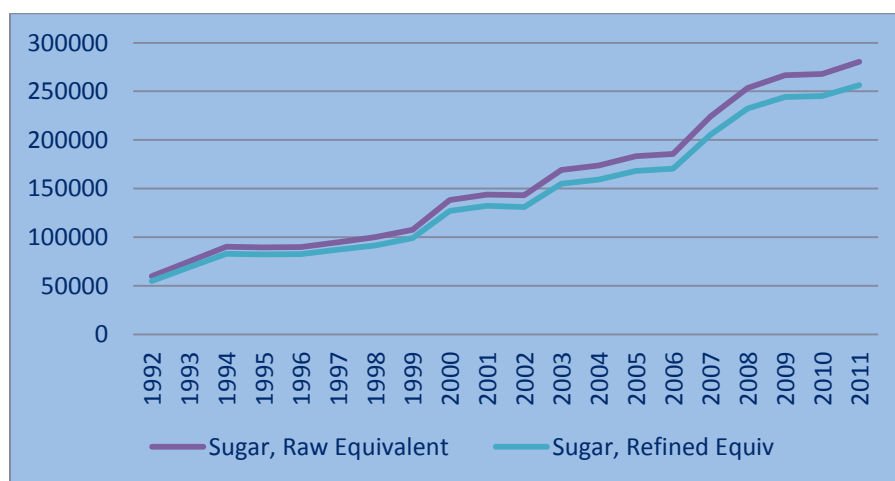
²⁹ FAOSTAT Production Database

³⁰ International Trade Center, TradeMap Data (based on UN COMTRADE database)

owns less than 25% each in Mafambisse, Marrameu, and Xinavane. Of the four, foreign direct investments, particularly from South Africa, have favored those companies located in the vicinity of Maputo due to infrastructural convenience and ease of trading across the border to South Africa. As a result, production of Mafambisse, located in the Beira corridor, has fallen substantially, and that of Xinavane in Maputo Province has increased. Together, the four sugar companies produce more than 95% of the sugar in Mozambique.³¹ Paralleling the increase in production, consumption of sugar—both raw and refined—has also increased in Mozambique (see Figure 9). Consumption of brown unrefined sugar is dominant, followed by refined white sugar, imported primarily from South Africa and consumed by few urban consumers.

Mozambique is a net sugar exporter, primarily of raw unrefined sugar. However, refined white sugar is almost entirely imported from South Africa—about 15,500 tons in 2013 out of a total import of 20,400 tons—since the low volume of demand for white sugar in Mozambique does not justify investments in refining facilities for the Mozambican sugar mills. In fact, it is more cost effective for Mozambican sugar companies to import refined white sugar from South Africa under what is called the “toll refining” arrangement, where Mozambique exports raw sugar to South Africa in exchange for white refined sugar at a payment of \$80 per tonne. Such imports are exempt from VAT.

Figure 9: Sugar Consumption in Mozambique since the end of civil war



Source: FAOSTAT Database

The sugar industry is subsidized and protected, and lacks much competition with just four major players that have vertically-integrated production, refining, and distribution networks. Sugar production and distribution processes both for domestic consumption and exports are controlled by the National Sugar Distributor³² (DNA), which imports the majority of refined sugar. The industry is also subsidized via Decree No. 4/2002, which exempts producers from the payment of

³¹ MAFAP-SPAAA (2013)

³² Distribuidora Nacional do Açúcar – DNA

VAT regarding the production, distribution and any kind of investment related to the sugar sector, although VAT is still applied at the retail level.

Raw and processed sugar are subject to import surtaxes, in addition to the basic duty of 7.5% (if importing from non-SADC countries) or of 3% (if importing from SADC countries), applied to the c.i.f. value of imports. The surtax is variable and set on a monthly basis, and depends on the differences between the Mozambican minimum prices (USD385/tonne for raw sugar and USD450/tonne for processed sugar) and world market reference prices expressed in c.i.f. value.³³ For instance, Order of Service No. 002/DGA/2008 of 28 January 2008 set the applicable reference prices (per ton) for raw (USD347.18) and processed sugar (USD388.09), and the associated surtaxes on raw sugar (10%) and processed sugar (15%).³⁴ However, the current applicable reference prices per ton of raw and processed sugar are higher than the Mozambican minimum prices of sugar. Hence, currently, the surtax on imported sugar is essentially zero.

Our interviews with two supermarkets confirmed that most of the sugar sold in Mozambique is brown sugar. Refined white sugar is predominantly imported from South Africa. The supermarkets procure brown sugar domestically but also import small quantities of brown sugar via their supply chains in South Africa. Domestic procurement of brown sugar is through an intermediary or a supply agent; supermarkets do not have direct contracts with Mozambican sugar producers.

MAIZE FLOUR

Maize is one of the most important staple foods in Mozambique, along with rice, beans and millet. It is particularly important for the rural population where subsistence farmers produce maize primarily for consumption. Spending on wheat products and rice is a much larger portion of the consumption basket for urban consumers than spending on maize.³⁵ Nonetheless, maize (typically in the form of maize flour) has traditionally been an important part of the Mozambican diet—supplying about 470kcal/capita in a day.³⁶

Nearly all regions of the country produce maize, albeit by smallholders using minimal technology or improved seeds—primarily for subsistence. The country's central and northern regions (Nampula, Zambezia, Tete, Manica, and Sofala) produce a maize surplus, which is generally exported during peak seasons to neighboring countries, such as Malawi, Tanzania, and Zimbabwe. During off seasons, these regions import maize from Malawi and other neighboring

³³ Ministerial Diploma No. 56/2001 of 30 March 2001 sets out the mechanism. Reference from International Trade Administration Commission of South Africa, Trade Policy Review, WT/TPR/S/209

³⁴ Reference from International Trade Administration Commission of South Africa, Trade Policy Review, WT/TPR/S/209

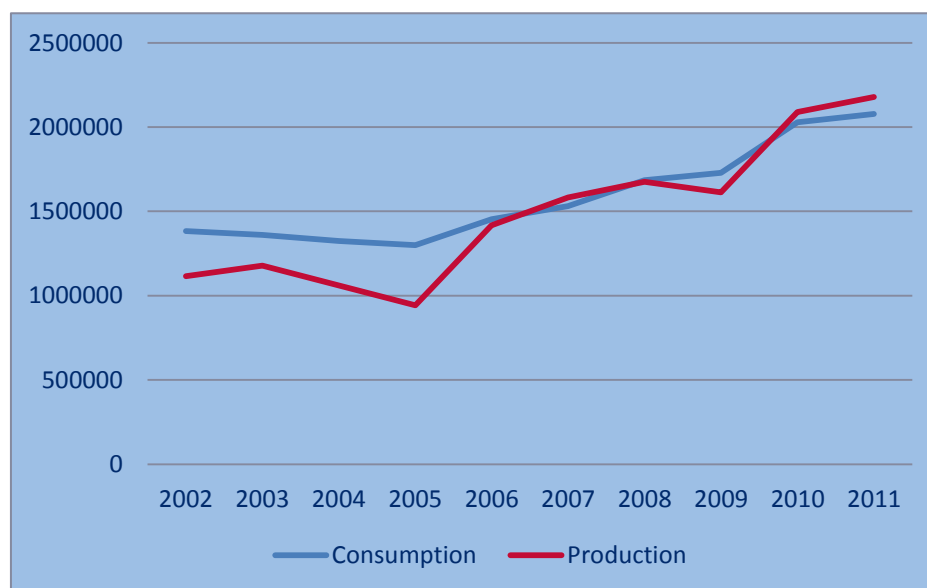
³⁵ “Maize shares in total food expenditure in urban Maputo province are 2.4%, compared to 7.4% for rice and 15.5% for wheat. The maize share rises outside of Maputo, to 14.5% in other southern provinces and 40% in the Center.” Tschirley and Abdula (2007), page x, from data given on page 13.

³⁶ FAOSTAT Database (2011)

countries. Due to the close trade ties to Malawi for maize, maize prices in the north and central regions tend to be closely tied to Malawian prices.³⁷

Due to weak infrastructural links to the country's southern region, surplus maize from the north and central zones is not transported to urban centers in the south, notably to Maputo. The Southern region—most notably the Gaza province which has favorable agro-climatic conditions, a well-developed irrigation system, and close proximity to Mozambique's biggest market (Maputo)—produces maize but not nearly enough to meet demand. The south zone, therefore, mainly imports maize, most of which comes from South Africa. This is despite the fact that the gap between production and consumption of maize at the national level has been narrowing in recent years, as depicted in Figure 10 below.³⁸ As a whole, Mozambique imported about 11% of its maize food consumption requirements, and exported about 2% of its maize production in 2011.

Figure 10: Trend in Maize production and consumption in Mozambique



Source: FAOSTAT Database

Although maize production in Mozambique has increased, productivity levels remain very low. Maize yield averages 1 ton per hectare, compared to an average of 3.6 tons per hectare for the other southern African countries.³⁹ It is estimated that only about 20 percent of domestic maize production is actually marketed.⁴⁰ In order for the country to reach maize self-sufficiency, therefore, increased productivity needs to be supplemented with improved market linkages within the country. Even with maize self-sufficiency at the national level, however, the Maputo region

³⁷ MAFAP SPAAA (March 2013)

³⁸ Consumption here includes consumption as food, seeds, feed, and wastage.

³⁹ Calculated from FAOSTAT Database (2013).

⁴⁰ MAFAP SPAAA (March 2013)

may well continue to rely heavily on imports from South Africa. Breaking this link to the South African market would require major improvements in both local maize yields and north-south transportation costs within Mozambique.

Maize price movements generally conform to annual seasonal patterns, with prices declining with the beginning of the harvest in April, followed by a period of relatively stability before rising from July onwards, as household stocks dwindle and demand for market supplies strengthen. Regionally, there exist distinct variations in price levels indicating limited market integration, high transport costs as well as reflecting differences in regional maize production. Despite the relatively higher prices observed in the south ranging from MT28.50/kg to MT30.00/kg in 2014, price fluctuations in the north are slightly larger with a range from MT23.10 to MT25.75 per kg.⁴¹

SOCIMOL (Sociedade Comercial e Industrial de Moagem), and CIM (Companhia industrial da Matola) in Maputo, MOBEIRA (Moagem da Beira) in Beira and CIMPAM (Companhia de Processamento Industrial de Milho) in Nampula are the main maize processors in Mozambique. A relatively open trade regime incentivizes the importation of maize grain from South Africa for the purpose of milling the grain for maize flour. A 17% VAT is applied to imported maize, but millers are entitled to deduct the VAT paid on the imported grain from the VAT on their sales of processed maize flour. Lower grain prices in South Africa and relatively expensive transportation costs within Mozambique make South African maize, particularly white maize, more competitive for the millers than locally produced grain. In addition, unreliability of local production and inability to meet quality standards such as packaging and conservation has resulted in the country's largest millers relying on imports for the majority of their maize processing for human consumption and animal feed.

A prior study conducted by the Ministry of Agriculture and Rural Development in 2007⁴² examined why maize flour prices in Mozambique were significantly and persistently higher than in Zambia or Kenya, even when maize grain prices were comparable. It found that typical margins between wholesale prices for maize grain and retail prices for breakfast meal were around USD125 – USD150 per ton since 2003 in both Zambia and Kenya, while this margin in Mozambique was about USD 390 per ton. The report suggests that milling costs would have to be about 2.5 times higher in Mozambique to explain this observed difference. This may partly be explained by policy differences between Mozambique, Zambia, and Kenya, but to a large extent, the difference may be explained by the fact that the local milling industry is heavily concentrated with a few large players with little competition. Competition from small-scale hammer millers is low, unlike in countries like Zambia and Kenya. The cost of milling appears to be a significant element in the retail price differential of maize flour between Maputo and Nelspruit.

⁴¹ INFOCOM-MIC Database

⁴² "Toward improved marketing and trade policies to promote household food security in central and southern Mozambique: 2007 update" Tschirley, D. and Abdula, D. Research Report No. 62 E, September 2007

Since 2010, the maize milling companies have benefited from government production subsidies on a 10 percent reduction of electricity price per kilowatt-hour aiming to incentivize domestic industries that use electricity for food production.⁴³

Across the border, in South Africa, there are no government subsidies or any form of direct financial aid to maize farmers. Yet South Africa is the main maize producer in the SADC region, with exports of the grain going mainly to Japan, Iran, Kenya and Venezuela. Other important markets are Zimbabwe, Zambia and Malaysia. Processed maize products are exported mainly to Mozambique, Angola and Zambia.

In general, supermarkets in Mozambique procure most of the maize flour sold in their shelves from outside of Mozambique. For instance, Shoprite said that it procures roughly about 60 percent of the maize flour locally and imports the rest from South Africa. Game procures most of its maize flour from South Africa. For the maize flour procured domestically, supermarkets have contracts with companies such as Topscore, rather than direct contracts with farmers.

CHICKEN

More than half the meat consumed in Mozambique is pigmeat, estimated at 52% in 2011, followed by poultry meat at 22%.⁴⁴ In 2011, Mozambique had an estimated 41.2 million total number of poultry, of which chicken represented about 58.2 percent, followed by guinea fowl and geese at 36.4 percent and ducks at 5.1 percent.⁴⁵ According to the Mozambican Association of Poultry Farmers (AMA, or Associação Moçambicana de Avicultores) data and reports from Ministry of Industry and Trade reviewed in Nicolau (2011), Mozambique produces an average of 1.5 million units of chicken per month. This translates to roughly 40,500 tons of chicken a year. Consumption however is estimated to be roughly around 47,000 tons per year nationwide, resulting in the country importing an annual average of 10,562 tons of chicken between 2008 and 2012.⁴⁶ Reports on chicken imports are somewhat ambiguous, with some estimates showing that chicken meat imports decreased by 24.1 percent between 2009 and 2011 to about 6,069 tons. However, FAO data shows that while there are fluctuations year-on-year for imports, the general trend for the past decade has been a rise in imports (Figure 11).

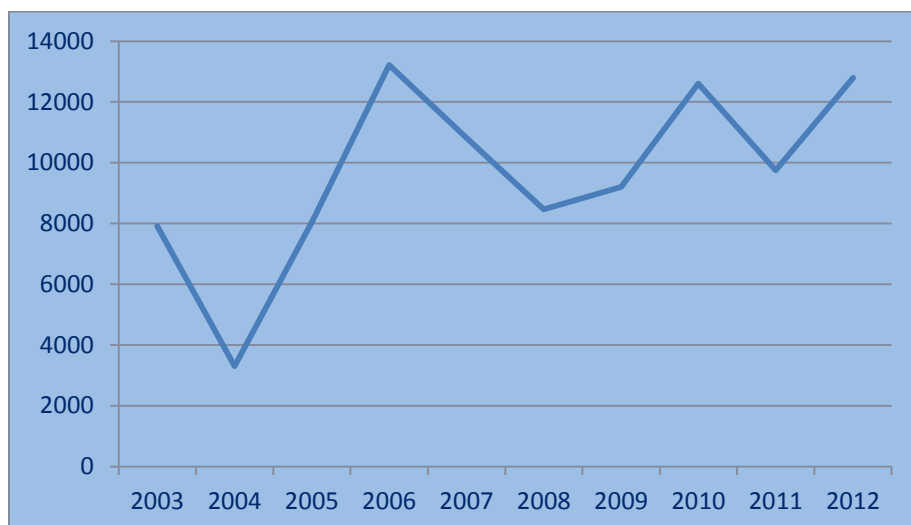
Figure 11: Trend in chicken import (Quantity in tons)

⁴³ MAFAPSPAAA (March 2013)

⁴⁴ FAOSTAT Database

⁴⁵ FAO Livestock Country Reviews, Mozambique Poultry Sector (2013)

⁴⁶ FAOSTAT Database



Source: FAOSTAT Database

The highest concentration of domestic chicken population is in the central zone of the country in Sofala, Manica, Tete, and Zambezia, which has roughly half of the total chicken stock in the country, according to the 2009-10 agricultural census (INE, 2011). The largest producers include General Union of Agricultural and Livestock Cooperatives (UGC, or União Geral das Cooperativas Agrícolas e Pecuários), Mozambique Farms, the Mozambique National Poultry Association (AMA) in the South of the country, Frangos de Manica, Abilio Antunes in Manica province in the central part of the country, and Novo Horizonte and Pintainhos Stewart in Nampula province, in the North of Mozambique.⁴⁷ Table 6 summarizes characteristics of chicken market in Mozambique.

Table 6: Overview of the Chicken sub-sector

Characteristics	Item	Source
Mozambique Population	25 millions	INE, projections
Per capita consumption	1.6 kg	MIC (2013)
Production system	90% independent	Nicolau, 2011
Raw material for feed	60% must be imported	Nicolau, 2008
Eggs for broiler production	from imports	Nicolau, 2008
Number of slaughterhouses	30 medium and large slaughterhouses	Agostinho 2010
Chicken products available	Whole and frozen chicken	Agostinho, 2010

Source: Authors' Compilation

The chicken industry in Mozambique faces tough competition from increasing imports of frozen chicken, mainly from Brazil. Imports help to fill the gap between national production and domestic demand. Chicken import increased from about 3100 tons in 2004 to 7,992 tons in 2009. However, prices of imported chicken are lower than those for domestically produced chicken because Brazil is a low-cost producer and one of the world's largest exporters of soy due to soil

⁴⁷ FAO Livestock Country Reviews, Mozambique Poultry Sector (2013)

and climatic advantages and scale economies. Soy, as chicken feed, is the main element of cost in raising a chicken—making chicken production in Brazil relatively low-cost. Hence, imported chicken poses steep competition for Mozambican chicken even during peak supply season.

Mozambican stakeholders are aware of the need to improve competitiveness and productivity of the chicken industry. Several efforts have been underway, some for years, to improve productivity, but also to stimulate consumers to buy local. Commercial investment in Mozambique's poultry industry has come from multiple sources, including ones facilitated by TechnoServe as part of a US government program. Partnering with thousands of soy and corn farmers, particular emphasis was given on poultry feed production. Programs were carried out to provide business and technical training for smallholder poultry farmers in order to improve their production practices. Support has also been given to commercial poultry businesses to upgrade processing machinery, expand production capacity, improve the quality of broilers and strengthen links to smallholders. Notwithstanding these efforts, the industry as a whole remains dependent on imported chicken—a phenomenon that is likely to increase as the rate of consumption continues to outpace the rate of production.

One of the main causes of low chicken productivity is Mozambique's dependence on costly imported chicken feed. Chicken feed imports have seen an exponential growth from about 122 tons in 2004 to about 15,147 tons in 2009.⁴⁸ Even neighboring South Africa relies on imported chicken feed, increasing their production costs and making imports from South Africa just as unattractive. Northern regions of Mozambique are slowly increasing production of chicken feed and it may not be surprising if industrial chicken production slowly sees a shift in production base from the south to the north to locate closer to feed production. Coupled with largely traditional productive structures, domestic production is highly seasonal and often volatile. The Government has recently approved a bill, Law 3/2012 of February 24, that alters the VAT code to exempt animal feed from VAT. The approved bill is aimed at reducing the price of domestic chickens. However, the VAT exemption alone is unlikely to compete with Brazilian chicken due to the latter's competitive price and climatic advantages for producing soybeans. One important competitive advantage for Mozambican producers is that they can supply fresh chicken meat, which is a better quality product than frozen meat.

Most interestingly, our interviews revealed that there is a multi-sectoral team comprised of government representatives, chicken importers, producers, Mozambican poultry association, and interested retailers. This team informally monitors data on number of chicken imported, future domestic chicken production, stock, and consumption. Based on this, an estimate of chicken deficit or surplus is computed. In case of a predicted deficit, the calculated deficit is the amount that is allowed to be imported. The objective of such a multi-sectoral team is clearly to protect the local chicken industry. However, in practice, such an imposition of an import quota, although it is not officially called a quota, has been to restrict supply and consequentially to increase retail

⁴⁸ FAO Livestock Country Reviews, Mozambique Poultry Sector (2013)

prices of chicken, especially during seasons of peak demand or reduced domestic supply. This is an important element of the high prices of chicken in the country.

Unlike the other food products of this study, the chicken industry has additional health and safety standards that are key to the industry's long-term viability. Mozambique is at risk of introduction and spread of Highly Pathogenic Avian Influenza (HPAI), according to the FAO. However, weak diagnostic capabilities, weak rural veterinary network, difficulties in providing compensation for mandatory culling of poultry all pose problems for prevention, detection, and containment of the disease. Several reports have cited that even commercial production of chicken falls short of biosecurity measures to avoid introduction and propagation of diseases. The state veterinary service, administered by the National Directorate of Veterinary Services (DNSV), is responsible for disease surveillance and control by law (Decree 26/2009 of 17 August). However, compliance with established norms and enforcement is far from ideal. For instance, all imports of animals and their by-products are required to be inspected at port of entry. However, this is not done systematically and a number of border points do not have Veterinary Authority present on site.

Before delving into discussions about price differences in chicken between Nelspruit and Maputo, it is helpful to understand a little about the South African chicken industry. Due to South Africa's dependence on costly feed imports, its domestic chicken industry is not competitive. To encourage the domestic industry, the South African government increased tariffs on imports of Brazilian whole birds from 27 percent to 82 percent in 2013. In July of 2014, provisional duties ranging from 22 percent to 73 percent on frozen bone-in portions were imposed on imports from Germany, the Netherlands and the UK, again to protect the domestic poultry industry. These numbers show that the tariff-inclusive import parity price for chickens is very high in South Africa, signaling that production costs and retail prices must be highly uncompetitive.

Hence, the price of chicken in Nelspruit is unlikely to have a direct supply chain relationship to the retail price in Maputo. Instead, supermarkets in Mozambique procure their chicken either through agents in Mozambique or imports of frozen chicken from Brazil. As with most other products, supermarkets rely on agents to supply the chicken in bulk and do not have direct farmer-to-supermarket supply chains. Wholesalers are typically responsible for imports and collecting domestic production to supply to retailers.

TOMATO

Tomatoes, a high-value crop, are produced in Mozambique predominantly by smallholder farmers. Production is seasonal, with the main growing season running from February to August. During off-season tomatoes are imported, mainly from neighboring South Africa. Mozambique is by far the largest market for South African tomato exports with a 75.3% share in 2012 at 15,964 tons. South African tomato exports to Mozambique have increased by 26% and 27% in terms of value and quantity between 2008 and 2012.⁴⁹ Notwithstanding increasing annual domestic

⁴⁹ A Profile of the South African Tomato Market Value Chain, Department of Agriculture, Forestry and Fisheries, Republic of South Africa (2013)

production from an estimated 25,000 ton in 2002 to 195,000 tons in 2011,⁵⁰ imported tomatoes are a dominant player in the urban retail market.

Tomato consumption is widespread in the Mozambican diet in both urban and rural areas. According to news reports, Maputo alone consumes 40 tons of tomatoes each day. Domestically grown production can satisfy 20 to 60% of national demand, depending on the year's yield quality.⁵¹ According to standardized FAO statistics, consumption of tomato in Mozambique has increased quite sharply, and domestic supply has risen in recent years, from both increased production and increased imports.

The bulk of Mozambican tomato production is sold fresh, in 20 kg crates, to domestic retail markets. There is no cold storage; tomatoes are sold in open spaces to local supermarkets and bazaars located in Grande Maputo and its surrounding areas, as well as other markets in the rest of the country. The Maputo suburb of Zimpeto hosts the nation's most important wholesale produce market.

Mukheristas, or informal traders, are the most important tomato importers in Mozambique. They source their purchases mainly from the Mpumalanga and Limpopo provinces of South Africa, supplying imported tomatoes to the fresh/informal food markets of Mozambique, and even to some supermarkets, although the supermarket chains also bring in their own supply.

Apart from domestic cost of production and importation, prices of tomatoes in Mozambique have sometimes risen due to non-economics factors. Anecdotal reports have suggested that groups of speculators successfully pushed up the price of tomatoes in Maputo markets—for instance in March/April 2012—by obstructing cross-border trade, sometimes physically seizing trucks hired by small scale Mozambican importers. Such actions caused the price of tomatoes in Maputo's main wholesale market to more than double in just a matter of a few weeks—from 200-250 meticaïs (\$7-\$9 US) to 500-600 meticaïs for a 22 kilo crate.⁵² Such groups are still believed to be in force around the South African border.

With support from the Ministry of Agriculture both commercial growers and small households have undertaken private investment in greenhouses in or near Maputo. In addition, the Mozambican government is providing support for investments in greenhouse nurseries for tomato seedling production.

Procurement for tomato seems to vary by store. Game, for instance, procures all of its fruits and vegetables from South Africa. They do not have any supplying agents for local produce. Shoprite on the other hand, procures most of its tomatoes from domestic farmers, and only procures about 5 percent of its total tomato sales from South Africa during off seasons.

⁵⁰ Represents standardized data from the FAOSTAT database.

⁵¹ <http://www.freshplaza.com/article/95249/Mozambique-takes-action-against-tomato-mafia> with citation from allafrica.com

⁵² preciousjules1985.wordpress.com April 13, 2012

COOKING OIL

Soyabean oil is the principal cooking oil consumed in Mozambique. Imports account for an estimated 81 percent of the domestic vegetable oil needs in Mozambique. Of these, 45 percent consist of industrially refined oil from crude oil imports and 36 percent are imports of refined oils.⁵³ Palm, sunflower and soybean oils, both in crude and refined forms, are the main product types entering the country. Palm oil, in particular, accounts for about half of the total imports. Major suppliers of bulk vegetable oils to Mozambique are South Africa (sunflower, generally mixed with other oils such as maize or peanut), Brazil (soyabean), Malaysia (palm) and Argentina (sunflower), which together accounted for an approximate 60 percent in 2013. For instance, imports of canola oil into Mozambique has risen from about \$1.4million in 2007 to \$14.5million in 2013, of which imports from South Africa alone accounted for \$93,000 in 2007 and \$13million in 2013.⁵⁴

The demand for vegetable oils in 2006 was between 35 and 45 thousand tons per year, but the capacity to produce oils from locally produced seeds was only 15 thousand tons per year. Consequently, imports accounted for 81 percent of domestic demand.⁵⁵ The rise in imports has been facilitated by the fact that crude oil is exempt from import duties and VAT on imports, helping domestic oil refiners to save on working capital costs and giving them a pricing edge over imports of processed oil. Prior to 2003, bulk oil imports were charged a 2.5 percent tariff and were subject to 17 percent VAT. Refined oils, on the other hand, had an import tariff of 25 percent and a VAT of 17 percent. Yielding to successful advocacy in favor of government support to the domestic industry, local authorities had in 2003 completely exempted manufacturers and processors that met minimum levels of gross revenues and value addition from any import duties on imported raw materials. Later, in 2004, VAT exemption was also granted to domestic oil refiners. Most oil crushing operations have all but ceased, while refining activities have conversely intensified. There are about 5 oil mid- to large- oil refineries in Maputo, 2 in Sofala, 3 in Nampula, and 1 in Zambezia.⁵⁶

Despite growing crude oil imports, Mozambique faces a number of challenges to meet growing demand. First, limited financial capacity of refineries poses constraints for expansion. Second, storage capacity for oil is severely limited. Third, ports in Maputo and Beira do not have capacity to receive large shipments. Nacala port has the capacity, but lacks storage capacity.

Cooking oil sold in Mozambican supermarkets is procured through domestic sources as well as imported from South Africa to meet demand. The data reported above, however, suggest that imports are still the marginal source of supply, and therefore a primary determinant of the supermarket price.

⁵³ Sutton, John (2014) – An Enterprise Map of Mozambique

⁵⁴ International Trade Center, TradeMap Data (based on UN COMTRADE database)

⁵⁵ FAO Briefs on Import Surges: No. 3 Mozambique, Vegetable Oils, November 2006

⁵⁶ Based on authors' interviews of the Association of Oil Producers

PROCESSED GOODS (BAKED BEANS, TOMATO PASTE, TUNA)

Fruit, vegetable, and animal processing in Mozambique is at a relatively nascent stage. Although some small and mid-sized processing plants, such as cassava processing plant in the city of Umbeluzi, are present, the retail market is far from satisfied via local processing of most fruits and vegetables. Unsurprisingly, therefore, almost all of the baked beans, tomato paste, and tuna found in Mozambican supermarket shelves are imported. Imports of processed good cater mainly to the urban population who can afford to have a variety in their daily diets.

In contrast to the situation in Mozambique, South Africa has a very well developed agro-processing industry. Manufacturing of food & beverages accounted for 14 percent of the total income from manufacturing in South Africa in 2008;⁵⁷ and 91 percent of the food and beverage processing is done by large companies, with annual turnover above 51 million Rand.

South Africa is therefore a major source for imports for such goods, along with Portugal and Thailand. Supermarkets in Maputo use their in-house distribution networks to procure these items, whether they are produced directly in South Africa, or come from other countries via South Africa.

⁵⁷ Stats SA, 2010

5. Elements of Price Variation

In order to examine the causes of price variation for the selected eight food products, we have narrowed the product specifications as listed in Tables 2 and 3 above. Since the food products in Tables 2 and 3 are all imported (and all but sugar and chicken is imported from South Africa), we take price differences presented in these tables and attempt to build up the differences in terms of such elements as import duties, transport costs, customs delays, and sales markup. In doing so, we make use of the following assumptions, which are based upon information received from our interviews with retailers, transporters, and government officials:

1. Due to lack of data on supermarket distribution center prices, we assume average retail operating costs in Nelspruit to be 10 percent and transportation costs from distribution centers to supermarkets in Nelspruit to be 1 percent. We take the average profit margin for South African retailers to be 5.0 percent.⁵⁸ These assumptions help us to arrive at the estimated average price for each commodity at the distribution center in South Africa, based on the observed retail prices in Nelspruit. We then use this estimate of the distribution center price as the FOB value for the commodity that gets imported to Maputo.
2. We assume that goods are transported from Nelspruit to Maputo in a 28-tonne truck, consistent with interviews with retailers and transporters in Maputo.
3. Based on our interviews with retailers and transport companies, we assume that the total transport cost, including insurance and handling, for a 28-tonne truck to Maputo costs on average about 28,000 ZAR.⁵⁹
4. Our interviews confirmed that perishable goods generally pass through the 4KM border and FRIGO near Maputo within a day, with special authorizations for perishables. Non-perishables, on the other hand, can take anywhere from 2-6 days at the 4KM border and 1-3 days at FRIGO. For our calculations, we assume that the non-perishables stay at the 4KM border for 4 days and at FRIGO for 2 days.
5. The financial cost of each additional day of delay for customs clearance is about ZAR 4,500 per day.
6. About 10 percent of trucks crossing the border are now selected for going through the new scanning services at FRIGO, known as *Kudumba*, requiring nominal additional costs of about US \$100 per truck.

⁵⁸ This number reflects an average of retail profit margins of the top 250 retailers in Africa and of some of the fastest growing South African retailers, based on Deloitte 2014 report “Global Powers of Retailing 2014” report.

⁵⁹ The same exchange rate of 2.9 MT to 1 ZAR is used for conversion into Meticaïs here, as was used to convert average prices in Nelspruit to Meticaïs.

For most of the food products, the estimated components of the price difference do not fully explain the observed price difference. In those cases, we explicitly show the size of the unexplained residual.

With these assumptions, for each commodity, we use import duty taxes provided by the Customs Authority for each of the eight products for imports from South Africa under the current SADC protocol, as listed below.

Table 7: Tax Rates applied on imports from South Africa

Commodity	Import Duty	VAT on Imports ⁶⁰
Sugar	3%	17%
Maize Flour	10%	17%
Chicken	10%	17%
Tomatoes	10%	0%
Cooking Oil	10%	17%
Tomato Paste	0%	17%
Baked Beans	0%	17%
Tuna	0%	17%

Source: Customs General Directorate

The Mozambican government through Decree 56/2011 has stipulated allowable ceiling of profit margins that wholesalers and retailers may charge for twelve basic food products as listed in Table 8. The profit margin, as defined in the decree, is the difference between the sales price and the total cost of the goods. For warehouses supplying local products, the “total cost” of goods can include the supply price excluding VAT, cost of transport, and insurance, and other charges up to 7 percent of the cost of the product in the warehouse. For warehouses supplying imported products, the cost of goods includes the CIF price, port charges, local transport to the warehouse, and other charges up to 5 percent of the cost of product in the warehouse. For retailers, the cost of goods includes procurement price, excluding VAT, local transport to the warehouse, and other charges up to 7 percent of the cost of acquisition at the wholesaler. The profit margin—wholesale or retail—applies to the total cost of goods as thus described. Thus, the maximum profit margin is applied on top of the 7 percent (or 5 percent in the case of warehouses with imported products) allowance for other charges. It is worth noting if a supermarket structures its procurement through a warehouse, even if such a warehouse is primarily for legal appearances, the decree makes it possible for the supermarket to apply both the warehouse and the retail markups, leaving ample scope for quite a high markup on the final retail price of a particular commodity.

The decree stipulates a penalty for infraction to be 50 times the minimum wage for the non-financial service sector for retailers; and 40 times the minimum wage for the non-financial service

⁶⁰ The VAT on imports has only a small effect on the retail price due to the VAT credit mechanism. Suppose the 17% VAT is paid on imports and reclaimed as a VAT credit on sales made within one month. Also suppose that the interest rate on working capital for a major chain is 10%. Then VAT at the border would explain a price increase of just 0.14% ($17\% \times 10\%/12$). The main impact of VAT is simply to boost that retail price by 17%.

sector for wholesalers. The monthly minimum wage for non-financial services sector in Mozambique is MT 4,228, or about US \$141 per month. Hence, the penalty is about \$7,050, which is quite small for a large supermarket. However, the decree is ambiguous in regards to whether the penalty is applied per infraction, or whether each day of violation is regarded as a separate infraction, or whether each item sold at an excess markup is considered an infraction. In the latter two cases, the penalty could potentially be quite high. The penalty also doubles for repeat infraction within six months, with the establishment forced to shut down for three to thirty days.

For food products where retail markup is an important element of the price difference between Nelspruit and Maputo, we assume in our calculations that retailers apply the maximum allowable ceiling as their profit margin. Clearly, this assumption may not hold for all food products as retailers may apply a lower profit margin on a certain commodity but a far higher margin on another so that their average profit margins are favorable. Nonetheless, this assumption allows us to separate operating costs from profit margins in the retail markup. We also demonstrate scenarios where a supermarket may utilize both the warehouse and retail markups. In addition to normal logistical motives for storing bulk shipments at a convenient warehouse, supermarket chains also have an incentive to pass price-controlled food products through a warehouse in order to add the additional layer of markups allowed for this function under Decree 56/2011.

Table 8: Maximum Allowable Profit Margin for Basic Food Products

Commodity	Wholesaler	Retailer
Frozen Chicken	12%	25%
Fish	12%	25%
Beans	10%	20%
Rice	10%	20%
Maize Flour	10%	20%
Wheat Flour	10%	20%
Cooking Oil	10%	20%
Sugar	10%	20%
Tomato	10%	25%
Onion	10%	25%
Potatoes	10%	25%
Eggs	12%	25%

Source: Decree 56/2011

SUGAR

The differences in average prices for sugar in Nelspruit and Maputo in Tables 2 and 3 compare sugar imported from Swaziland, not domestically produced in Mozambique. Since supermarkets either procure from their distribution centers in South Africa, or domestically in Mozambique, it is safe to assume that the Swazi sugar in Mozambican supermarkets is imported from South African distribution centers.

Table 9 breaks down the difference in prices between Nelspruit and Maputo.

Table 9: Explaining difference in Sugar Prices (1 Kg Bag)

	In MT	As a % of difference
Average retail price of sugar in Nelspruit	27.57	
Estimated average distribution center price of sugar in Nelspruit, net of VAT	20.75	
Average retail price of sugar in Maputo, net of VAT	45.58	
Difference in average price of sugar	24.83	
Of which:		100%
Transport Cost for Shipment	2.90	12%
Border Taxes	0.71	3%
Sugar Surtax	0.00	0%
Cost of delays at 4KM border	0.17	1%
FRIGO Scanning, Parking & Handling	0.86	3%
Additional Transport Costs due to Delays	2.80	11%
Wholesale and Retail Markup	17.40	70%
Of which:		
Allowance for wholesale operational costs (as per Decree 56/2011)	1.41	6%
Wholesale Profit Margin (per Decree 56/2011)	2.96	12%
Allowance for retail operational costs (as per Decree 56/2011)	2.28	9%
Retail Profit Margin (per Decree 56/2011)	6.97	28%
Other price determinants (unexplained residual)	3.78	15%

Source: Authors' Calculations

The majority of the price difference between Nelspruit and Maputo appears to stem from wholesale and retail markups in the case of sugar—accounting for 70 percent of the difference in prices of Swazi brown sugar. Retail markup, as computed in this table, is a residual of all the difference after accounting for import duties, transport costs, and other customs clearance costs. As such, it includes both the supermarket operating costs and profit margins. As per Decree 56/2011, the maximum wholesale operating costs for imported sugar and wholesale markup are 5 percent and 10 percent, respectively. Additionally, retail operational costs and retail profit margin can be as high as 7 percent and 20 percent, respectively. If a supermarket structures its procurement system such that it can apply both retail and wholesale markups, wholesale and retail profit margins together account for 40 percent of the price difference, while operating costs account for a total of 15 percent of the difference. Transport costs and the costs of customs delay at the border are the next most significant factors, accounting for 12 percent each of the price difference. The price difference in sugar is quite significant: 15 percent of the difference cannot be explained even after accounting for transport costs, duties, allowable markups, and operating costs. If the supermarkets in Maputo do not hold sugar imports in a warehouse facility before stocking the retail shelves, then the unexplained residual would be even larger, representing roughly one-third of the observed excess price in Maputo.

Since the focus of this study is on brown sugar, the sugar surtax becomes irrelevant. Even for the case of refined white sugar, as mentioned in the previous section, the effective sugar surtax is currently zero percent, and hence, this element is not a factor in the price difference.

MAIZE FLOUR

As noted in the previous section, it is likely that the price difference in maize flour between Nelspruit and Maputo may stem from high costs of milling in Mozambique. However, for this study, since we are focusing on maize flour imported from South African distribution centers and sold in supermarkets in Mozambique, the breakdown of prices will compare maize flour imported into the country, rather than maize grain which is then processed. While imported maize is eligible for VAT exemption during import, maize flour is processed and is not exempt.

Table 10: Explaining difference in Maize Flour (White Star, 1 Kg Bag)

	In MT	As a % of difference
Average retail price of maize flour in Nelspruit	21.29	
Estimated average distribution center price of maize flour in Nelspruit, net of VAT	16.02	
Average retail price of maize flour in Maputo, net of VAT	34.19	
Difference in average price of maize flour	18.16	
Of which:		100%
Transport Cost for Shipment	2.90	16%
Border Taxes	1.89	10%
Cost of delays at 4KM border	0.17	1%
FRIGO Scanning, Parking & Handling	0.72	4%
Additional Transport Costs due to Delays	2.80	15%
Wholesale and Retail Markup	9.69	53%
Of which:		
Allowance for wholesale operational costs (as per Decree 56/2011)	1.22	7%
Wholesale Profit Margin (per Decree 56/2011)	2.57	14%
Allowance for retail operational costs (as per Decree 56/2011)	1.98	11%
Retail Profit Margin (per Decree 56/2011)	6.06	
Retail Profit Margin (observed)	3.91	22%
Other price determinants (unexplained residual)	0.00	0%

Source: Authors' Calculations

In the case of maize flour again, the largest source of price difference arise in wholesale and retail markups in Maputo, which account for more than half of the difference. We can assume that supermarkets apply a profit margin somewhere in between none to 20 percent—the maximum allowable for maize flour by Decree 56/2011—after covering their operating costs. Supermarkets could also use a warehousing facility to apply additional markups and operating costs per the Decree. If we assume that supermarkets like Shoprite, which has a warehouse facility, applies the full 10% of warehouse profit margin and 5 percent operating costs, as well as additional retail markup, 21 percent of the price difference is accounted for by warehouse markup alone. Another 11 percent of the price differential can be explained by retail operating costs. The Decree would allow an additional MT 6.06 for a 1Kg packet of maize flour to be charged as retail profit margin. However, the observed retail profit margin that supermarkets charge averages about MT 3.91,

representing 22% of the observed price differential. This may be due to two reasons. First, only Shoprite out of the three supermarkets uses a warehousing facility; hence retail markups for the other two stores are likely higher—likely to the allowable maximum—since they are not able to apply additional warehousing markups. Second, markups may vary by commodity and brand. It may be possible for a supermarket to apply less than the maximum allowable markups on one product, while charging a high markup on another.

The rest of the price difference between Maputo and Nelspruit is accounted for by transport and border costs. Almost 20 percent of the price difference in maize flour is due to direct transport costs and border fees; while 10 percent is because of border taxes. Additionally, another 16 percent of the difference is reflected in transportation delays at the border.

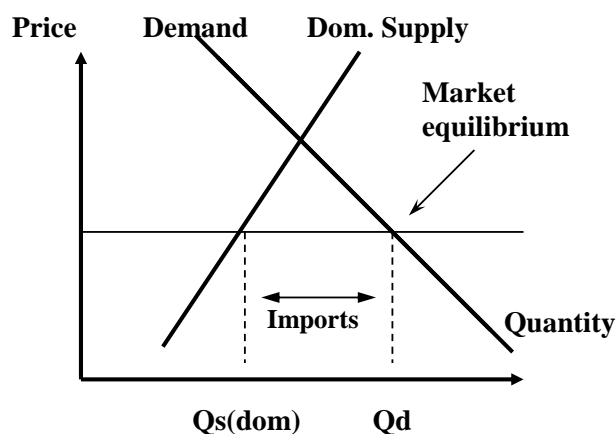
For the scenario including wholesale (warehouse) markups, the enumerated cost components fully account for the difference in the price of maize flour between Nelspruit and Maputo. For an alternate scenario without wholesale markups (warehouse operating costs and profit margins), Decree 56/2011 suggests that retail profit margin would account for 29 percent of the markup, and retail operational costs for 9 percent. 15 percent of the differential in prices of maize flour between Nelspruit and Maputo would be due to unexplained residual that are not captured in the enumeration of the cost components.

CHICKEN

The case of chicken presents an interesting puzzle. While imports of frozen chicken from Brazil appear to be the source of supply at the margin to urban markets in both Mozambique and South Africa, the observed price for frozen chicken in Nelspruit turned out to be highly inconsistent with available data on FOB prices of frozen chicken from Brazil, combined with transportation and insurance costs, import duties, and other identifiable components of the retail price. The inconsistency may be traced to differences in the quality of chicken, or factors not captured in this analysis. These anomalies indicate that the chicken sector requires further in-depth investigation. Here, we present our findings, given the data collected for this study.

The starting point is the simple supply and demand graph in Figure 13 below. As shown, in situations where domestic supply (Q_s) cannot fully meet domestic demand (Q_d), then the gap is filled by imports. And where imports are the source of supply at the margin, the import parity price (inclusive of tariffs and trading margins) becomes the equilibrium price in the domestic market. As and when the domestic supply curve shifts to the right sufficiently to fully satisfy domestic demand (through a combination of increased capacity and improved efficiency), the import price will no longer determine the market equilibrium.

Figure 12: Relevance of Import Parity Price



Our interviews with Shoprite and Game confirmed that chicken is either procured locally in Mozambique or imported from Brazil. As storage facilities are a constraint—even for Shoprite, which has the largest number of existing and planned stores in Mozambique—retailers prefer to procure locally through supplier agents, or national suppliers such as Nacional. As explained in section 4, however, imports from Brazil are still the source of supply at the margin.

Another factor that has a direct implication on prices of chicken in Mozambique is the apparent import restrictions placed on supermarkets through the multi-sectoral committee discussed in Section 4. Shoprite revealed it was allowed to import only 350 tons of chicken in 2014 from outside of Mozambique. In 2015, Shoprite claims to be pushing to import 500 tons of chicken. As national supply is unable to meet demand, particularly during peak season and importers are restricted in import quantities, the equilibrium price of chicken is higher than it would be in a free market with no import restrictions.⁶¹ The informal import quota on chicken, as determined by the multisectoral committee discussed in Section 4 above, therefore creates a shortage of supply, thereby increasing the price of chicken in Mozambique.

Since chicken imports are also reported to be the supply source at the margin in South Africa, we focus our analysis of price differences on building up the price in both countries from the CIF import value of frozen chickens from Brazil, taking into account import duties, transport costs and retail markup in both countries. Due to lack of capacity for large shipments at Maputo port, we assume that chicken imported from Brazil would be routed via Durban and transshipped to Maputo. In our analysis, we have assumed that retailers in Nelspruit obtain imported frozen chickens via the port of Durban. It may be possible that chickens for Nelspruit arrive through Maputo harbor to save on road transport charges, but port charges via Maputo are probably higher than those in Durban, which benefits greatly from scale economies in shipping and port operations.

⁶¹ In Figure 12, this would be shown by a new supply curve shaped like the domestic supply curve, but lying further to the right by the amount of the fixed ceiling that limits the volume of imports. This will result in a higher equilibrium price.

Table 11 below shows the breakdown of the prices, where we use the CIF value of 1.1 kilogram of whole frozen chicken based on the actual FOB value per metric ton of chicken from Rio De Janeiro as of November 2014,⁶² plus the known cost of shipment and insurance to Durban,⁶³ and estimated costs of transporting to Nelspruit and Maputo.

Table 11: Buildup of Retail Price of Imported Frozen Whole Chicken (1.1 Kg)

	Maputo	Nelspruit
FOB Value of 1.1 Kg of Whole Frozen Chicken (USD)	1.97	1.97
Freight and Insurance Costs to Durban (USD)	0.51	0.51
Est. CIF Value of 1.1 Kg of Whole Frozen Chicken at Durban (USD)	2.48	2.48
Est. CIF Value of 1.1 Kg of Whole Frozen Chicken at Durban (MT)	74.33	74.33
Import Duties for chickens entering South Africa (via Durban)	0.00	61.70
Custom fees and cost of delays at port in Durban	1.86	3.72
Transportation Cost from Durban, by sea to Maputo and by road to Nelspruit	0.10	1.86
Est. CIF Value of 1.1 Kg of Whole Frozen Chicken at Maputo (MT)	76.29	N/A
Import Duties (Maputo)	7.63	0.00
Custom fees and cost of delays (Maputo)	0.68	0.00
Warehouse operating costs (as allowable by Decree 56/2011)	4.23	3.54
Warehouse markup (as allowable by Decree 56/2011)	10.66	3.63
Retail operating costs (as allowable by Decree 56/2011)	6.96	3.72
Retail markup (as allowable by Decree 56/2011)	26.61	3.81
Final retail price (from price buildup)	133.07	156.30
Observed average retail price, exclusive of VAT	123.93	72.61
Unexplained difference	-9.13	-83.70
Unexplained difference (as a percentage of observed prices)	-7%	-115%

Source: Authors' Calculations

In the case of Mozambique, the table uses the maximum allowable warehouse and retail operating costs of 5 percent and 7 percent, respectively as allowed by Decree 56/2011, and the maximum allowable profit margins of 12 percent for warehouse and 25 percent for retail margins. We also assume freight rate from Durban to Maputo to be USD 1,400—consistent with Druren & Veldman (2009). If the container to Maputo is full of frozen chickens, this works out to an

⁶² Data from FAO database for FOB export value of chicken from Brazil as of November 2014, <http://www.fao.org/economic/est/prices>

⁶³ CIF value estimation assumes \$7,400 per 40-foot refrigerated container of frozen meats from Rio de Janeiro to Durban from at: <http://worldfreightrates.com/freight#>. As per <http://www.grwglobal.com/chickenprodpakistan.htm>, a 40ft Reefer container contains about 16,000 kg of chicken.

average cost of about USD 0.10 per chicken.⁶⁴ These assumptions, combined with available data on import duties and custom fees, more than fully explain the observed average price of frozen chickens in Maputo. This implies either that retailers were not applying the maximum allowable margins for this product at the time of our data collection in Maputo, or that we have overestimated some of the cost elements.

In the case of Nelspruit, we have assumed that custom fees and delay costs in Durban amount to 5 percent of CIF value, with an additional 2.5 percent cost for inland transportation to Nelspruit, which would likely include warehousing and reloading in Johannesburg for transport to Nelspruit. While there are no custom fees applying to transshipment through Durban to Maputo, we have assumed a cost increase of 2.5 percent to delays in the Durban port. We also assume 2.5 percent each for warehouse and retail operational costs in South Africa, as well as 2.5 percent each for warehouse and retail markups. These assumptions were made due to lack of data on inland transportation costs, custom fees, cost of delays at the South African border, retail and warehouse operating costs and markups. Of course, lower estimates of these costs will result in a smaller difference in the prices of chicken in Nelspruit and Maputo.

The build-up of prices as shown in Table 11 suggests that the retail price for chicken in Nelspruit should be higher than in Maputo due to the very high import duty that South Africa levies on this product. What we observe, however, is that the average price in Nelspruit was about 41 percent lower than in Maputo. A possible explanation for this inconsistency may be that our assumptions about markups and operating costs as well as transporting goods within South Africa may be incorrect. But these factors cannot explain why the observed price in Nelspruit is less than half of the price suggested by our build-up analysis. Indeed, the price in Nelspruit is lower than the CIF value plus import duty, alone. Furthermore, if the price in Nelspruit were truly that much lower than in Maputo, then supermarkets in Maputo should have been reporting to us that their frozen chickens were being procured through Nelspruit (due to the low price); this was not the case. Another factor at play may be that South African supermarkets may have been pricing whole birds at below cost in order to attract high-income shoppers to their stores. Whole birds are relatively expensive and consumed by higher income households; representing less than 1 percent of poultry imports to South Africa.⁶⁵ The observed low prices of whole frozen chicken may therefore be a pricing strategy to attract consumers.⁶⁶ Finally, the inconsistency may also be due to errors in data collection, or other factors not captured in this study.

⁶⁴ If the container mixes chickens and other goods, the pro-rata freight cost per chicken should be approximately the same as shown in the table, as long as the value of the other goods is similar to the value of a shipment of chickens only.

⁶⁵ <http://mg.co.za/article/2013-09-30-sa-increases-import-duties-on-whole-chickens-to-82>, September 2013

⁶⁶ The low proportion of imports may be even lower as the Government introduced an import tariff of 83 percent in September 2013 on whole birds—the maximum allowable by the World Trade Organization. Given the small demand for whole chicken, frozen whole chicken may be a poor standard for pricing comparisons.

Due to this inconsistency with observed and calculated prices of chicken in Nelspruit, the analysis of chicken prices must be taken with caution and warrants further study to specifically review the cause of price differences in chicken between Maputo and Nelspruit.

TOMATO

Unlike other food products in this study, fresh tomatoes are highly seasonal. Our interviews with supermarkets revealed that there is no consistent procurement system for tomatoes. For instance, Game procures all of its fruits and vegetables directly from South Africa irrespective of Mozambican alternatives. Shoprite, on the other hand, procures about 95 percent of its tomatoes in Maputo with the remaining 5 percent from South Africa during off-season around December every year. Shoprite even has direct contracts with a small number of farmers just outside Maputo that supply about 3 tons of tomatoes a week to the stores in and around Maputo.

We use tomato prices in the Game store for tomatoes procured from South Africa for our analysis, which is shown in Table 12 below. This approach to compare tomatoes prices in the two cities is justified by the fact that the import parity price (as in the case of tomato prices imported by Game) imposes a ceiling on the price of domestically produced tomatoes that is procured by Shoprite.

Table 12: Explaining difference in Tomato Prices at Game Store (1 Kg)

	In MT	As a % of difference
Average retail price of tomatoes in Nelspruit	55.17	
Estimated average distribution center price of tomatoes in Nelspruit, net of VAT	48.39	
Average retail price of tomatoes in Maputo, (VAT zero rated)	73.00	
Difference in average price of tomatoes	24.61	
Of which:		100%
Transport Cost for Shipment	2.90	12%
Border Taxes	5.13	21%
Cost of delays at 4KM border	0.04	0%
FRIGO Scanning, Parking & Handling	0.12	0%
Additional Transport Costs due to Delays	0.47	2%
Retail Markup	15.94	65%
Of which:		
Allowance for retail operational costs (as per Decree 56/2011)	3.99	16%
Retail Profit Margin (observed)	11.95	49%
Retail Profit Margin allowed (per Decree 56/2011)	15.26	
Other price determinants (unexplained residual)	0.00	0%

Source: Authors' Calculations

For tomatoes sold at Game, the bulk of the difference in prices—about 65 percent—stems from retail markup alone. About half of the difference can be accounted for by retail profit margin, and 16 percent by retail operational costs. Border taxes are another significant source of the difference, accounting for a little over one-fifth of the price differential. Transport costs,

including border fees and cost of the delays, account for an additional 14 percent of the price difference. In fact, border taxes, transport costs, cost of delays, and retail markup account for more than a 100 percent of the price differential. This implies that the difference in prices between imported tomatoes from South Africa in Mozambique and tomatoes in Nelspruit can be completely explained by these costs alone. The cost elements thus enumerated leave no room for wholesale markups to be applied to the final retail price, consistent with Game's assertion that it does not utilize warehouse facilities in Maputo.

COOKING OIL

We use the South African brand Sunfoil canola oil for comparing prices of cooking oil between Nelspruit and Maputo. Below are the findings of the various elements of the difference in prices.

Table 13: Explaining difference in Cooking Oil Prices (1 Liter)

	In MT	As a % of difference
Average retail price of cooking oil in Nelspruit	43.88	
Estimated average distribution center price of cooking oil in Nelspruit, net of VAT	33.03	
Average retail price of cooking oil in Maputo, net of VAT	67.52	
Difference in average price of cooking oil	34.50	
Of which:		100%
Transport Cost for Shipment	2.67	8%
Border Taxes	3.57	10%
Cost of delays at 4KM border	0.16	0%
FRIGO Scanning, Parking & Handling	1.21	3%
Additional Transport Costs due to Delays	2.57	7%
Wholesale and Retail Markup	24.32	71%
Of which:		
Allowance for wholesale operational costs (as per Decree 56/2011)	2.16	6%
Wholesale Profit Margin (per Decree 56/2011)	4.54	13%
Allowance for retail operational costs (as per Decree 56/2011)	3.49	10%
Retail Profit Margin (per Decree 56/2011)	10.68	31%
Other price determinants (unexplained residual)	3.46	10%

Source: Authors' Calculations

Sales markup is the most important factor of the price difference in cooking oil. Assuming supermarkets are able to apply both wholesale and retail markups, more than 70 percent of the price difference stem from profit margins, and operating costs alone. Another 10 percent is due to border taxes. Transport costs, border fees, and cost of delays account for 18 percent of the difference.

Even after applying maximum wholesale and retail profit markups, as allowed by Decree 56/2011, an additional 10 percent of the difference in prices of cooking oil between Nelspruit and Maputo cannot be explained by the enumerated cost elements. This unexplained residual is even

higher—roughly 29 percent—if supermarkets do not stock up cooking oil in a warehouse before putting them up for sale in their shelves.

TOMATO PASTE

As illustrated in Table 14, high sales markup in Mozambique accounts for the majority of the price difference in tomato paste between Nelspruit and Maputo—almost 90 percent. As tomato paste is primarily an imported good in Mozambique and there are no restrictions on the limit to which a retailer can charge a profit margin, the high sales markup is not entirely surprising. This is particularly because there is practically no competition for tomato paste from the domestic industry. Unlike staple food products which have domestic production capacities of varying degrees, processed food products like tomato paste have no viable domestic substitutes. This allows imported goods to monopolize the domestic market, allowing retailers the latitude to charge high markups.

Transport costs, border fees, and custom delays account for about 11 percent of the price difference. There are no import duties on tomato paste.

Table 14: Explaining difference in Tomato Paste (410g)

	In MT	As a % of difference
Average retail price of tomato paste in Nelspruit	41.25	
Estimated average distribution center price of tomato paste in Nelspruit, net of VAT	31.05	
Average retail price of tomato paste in Maputo, net of VAT	62.41	
Difference in average price of tomato paste	31.36	
Of which:		100%
Transport Cost for Shipment	1.19	4%
Border Taxes	0.00	0%
Cost of delays at 4KM border	0.07	0%
FRIGO Scanning, Parking & Handling	1.03	3%
Additional Transport Costs due to Delays	1.15	4%
Sales Markup	27.93	89%

Source: Authors' Calculations

BAKED BEANS

High sales markup for baked beans in Mozambique contributes the majority of the price difference—of about 81 percent. As with tomato paste, there is virtually no domestic industry for processing beans to prepared canned baked beans. Hence, almost all of the domestic consumption is imported from abroad. Baked beans are also considered a luxury item, accessible to folks with higher income and varied taste. The high retail markup therefore signals little to no competition from the domestic baked beans industry as well as retailers applying a higher markup for products that are consumed by higher income groups.

Transport and transport delays account for 14 percent of the price difference, and border fees account for 4 percent of the difference. As with tomato paste, baked beans are exempt from import taxes.

Table 15: Explaining difference in Baked Beans Prices (400g)

	In MT	As a % of difference
Average retail price of baked beans in Nelspruit	23.72	
Estimated average distribution center price of baked beans in Nelspruit, net of VAT	17.85	
Average retail price of baked beans in Maputo, net of VAT	33.45	
Difference in average price of baked beans	15.60	
Of which:		100%
Transport Cost for Shipment	1.16	7%
Border Taxes	0.00	0%
Cost of delays at 4KM border	0.07	0%
FRIGO Scanning, Parking & Handling	0.63	4%
Additional Transport Costs due to Delays	1.12	7%
Sales Markup	12.62	81%

Source: Authors' Calculations

TUNA

As was the case of baked beans and tomato paste, the majority of the price difference for tuna stems from sales markup, which accounts for 92 percent of the difference. Transport costs and transport delays are only 4 percent of the price difference and border fees account for 3 percent of the price differential. Canned tuna is exempt from import duties.

Table 16: Explaining difference in Tuna Prices (170g)

	In MT	As a % of difference
Average retail price of tuna in Nelspruit	53.47	
Estimated average distribution center price of tuna in Nelspruit, net of VAT	40.24	
Average retail price of tuna in Maputo, net of VAT	78.63	
Difference in average price of tuna	38.39	
Of which:		100%
Transport Cost for Shipment	1.16	3%
Border Taxes	0.00	0%
Cost of delays at 4KM border	0.03	0%
FRIGO Scanning, Parking & Handling	1.25	3%
Additional Transport Costs due to Delays	0.48	1%
Sales Markup	35.48	92%

Source: Authors' Calculations

OBSERVATIONS ON THE PRICE DIFFERENTIALS

A common thread for almost all of these food products is that sales markup is the most significant element of the price difference in products between Nelspruit and Maputo. Nearly in all cases, retail and wholesale markup is the single most significant cause of the difference in prices.

Without access to retailer operating costs and profit margins, unpacking what enters the retail markup is nearly impossible, though in the case of the five staple food products, Decree 56/2011 allows us to get a sense of the possible breakdown of profit margins and operating costs.

However, it is worth considering a few operating costs in both Nelspruit and Maputo to offer insights into the extent of difference in these costs that creep up in the final retail prices of food products. Table 17 below presents some rough estimates of basic operating costs for retailers in both Nelspruit and Maputo.

Table 17: Sample Operating Costs in Nelspruit and Maputo

Type of Cost	Nelspruit	Maputo
Average Commercial Space Rental (per sq.ft.)	USD 10	USD 40
Minimum Wage of Labor (per month for a clerk in metropolitan area)	USD 316.00	USD 140.93
Price of Electricity (per kWh, for low-voltage power)	USD 0.04	USD 0.05
Corporate Income Tax Rate	28%	32%

Source: Authors' Compilation from various sources and interviews

With the exception of labor costs, other operating costs are higher in Maputo. For instance, rental cost for a commercial space is four times as high in Maputo than in Nelspruit, while corporate tax rates are four percentage points higher. Higher operational costs, along with opportunity costs due to general business environment concerns (discussed in the next section), puts upward pressures on the sales markup in Maputo than in Nelspruit for retailers to simply recover their own costs.

Another noticeable observation from the breakdown of the price differences by commodity is that the sales markup is higher for processed products—cooking oil, baked beans, tomato paste, and tuna. Sales markup for these food products accounts for more than half of the price difference between Nelspruit and Maputo. Assuming certain fixed operating costs for a retailer, varying profit margins across food products offer a mechanism for retailers to make higher margins on some products and less or no margins on others as a way to make an average aggregate profit margin. This is standard practice in the supermarket industry worldwide, to the extent allowed by the strength of local competition. Imported products face little to no domestic competition in the processed product category and in the case of baked beans, tuna, and tomato paste, have no restrictions on profit margin ceilings. These food products therefore allow retailers the opportunity to make higher margins than other goods that face local competition.

Among the staple food products, sugar appears to have the highest sales markup—accounting for about 70 percent of the difference in prices of sugar in Maputo and Nelspruit. DNA is responsible for the imports and exports of all sugar in Mozambique. Without competition from any other importer or producer of sugar, we presume here that the retail markup for sugar includes maximum allowable profit margins. DNA, as the importing body and wholesale supplier, could charge the maximum allowable profit margin on imported sugar, and supermarkets subsequently

add on their retail markup on the price of sugar—making the final retail price of imported sugar quite higher than prices in Nelspruit.

Domestic supply of chicken, on the other hand, does not yet fully meet demand, especially in peak season. This coupled with the fact that retailers have import restrictions on the volume of chicken imported means that supermarkets run out of their import restrictions without domestic substitution in times of peak demand. In this case, factors other than markups alone come into play to push prices higher.

With limited capacity at the MIC to enforce Decree 56/2011, it is possible that retailers use even higher markups than allowed as a smoothing behavior, where low prices during off-peak demand is offset by higher markup during peak seasons. Our interviewees suggested that government agencies lack the data needed of supermarket operating costs to enforce the Decree in any substantive manner. In addition, staff capacity within MIC is limited to be able to perform such analytical investigations and dedicate manpower to systematic enforcement.

6. Some Considerations for Price Variation

The previous section deals with the direct elements that add up to price differentiation in food products between Nelspruit and Maputo. In this section, we take a look at other external factors that retailers and wholesalers directly or indirectly take into account while determining their retail markup.

BUSINESS ENVIRONMENT

The World Bank ranks 189 economies in the ease of doing business based on standardized surveys of small and medium-size enterprises in 10 areas of business regulation, such as starting a business, resolving insolvency, and getting electricity. In the latest Doing Business rankings (2015), Mozambique ranks 127th out of the 189 economies, compared with South Africa's ranking of 43rd. Mozambique's current ranking reflects an improvement over the prior year, when the country ranked 142nd out of 189 economies,⁶⁷ highlighting improvements such as, facilities for the registration of ownership and recovery of companies in insolvency. Although Mozambique's ranking is in the top 11 rankings among the 47 countries Sub-Saharan Africa, it still signals an inefficient and rigid business climate, which is a deterrent to both domestic and foreign investment. Among Doing Business indicators, Mozambique's ranking is above 100 in only two areas: protecting minority investors, and dealing with construction permits. Across all 10 stages of doing business, Mozambique consistently ranks poorly when compared with South Africa.

Table 18: World Bank Doing Business Rankings

Business Environment Indicator	South Africa	Mozambique
Ease of Doing Business Rank	43	127
Starting a Business	7	13
Dealing with Construction Permits	4	16
Getting Electricity	27	29
Registering Property	13	15
Getting Credit	5	18
Protecting Investors	1	11
Paying Taxes	2	19
Trading Across Borders	5	14
Enforcing Contracts	4	38
Resolving Insolvency	1	16

Source: World Bank Doing Business Indicators Database, 2015

⁶⁷ The World Bank Doing Business rankings have been adjusted in 2015. Due to changes in methodology, Mozambique's previous ranking of 139th out of 189 countries in 2014 has been revised to 142nd out of 189 countries.

According to Doing Business data, total tax rate—including profit tax, labor and social contributions, and other taxes—is about 36.6 percent in Mozambique. This compares with a total tax rate of about 28.8 percent in South Africa, and 46.2 percent in Sub-Saharan Africa. The World Bank Doing Business indicators collect data for the cost of imports and exports to the largest cities in each country. Mozambique fares better than South Africa in the costs of imports and exports due to the cities used for this comparison. For Mozambique, the World Bank data estimates that exporting from/importing to the coastal city of Maputo costs \$1,100 and \$1,600 per container, respectively. This compares to the cost per container of exporting from and importing to the inland city of Johannesburg of \$1,830 and \$2,080, respectively. The indicator unfortunately does not provide data on the costs of imports and exports from Nelspruit.

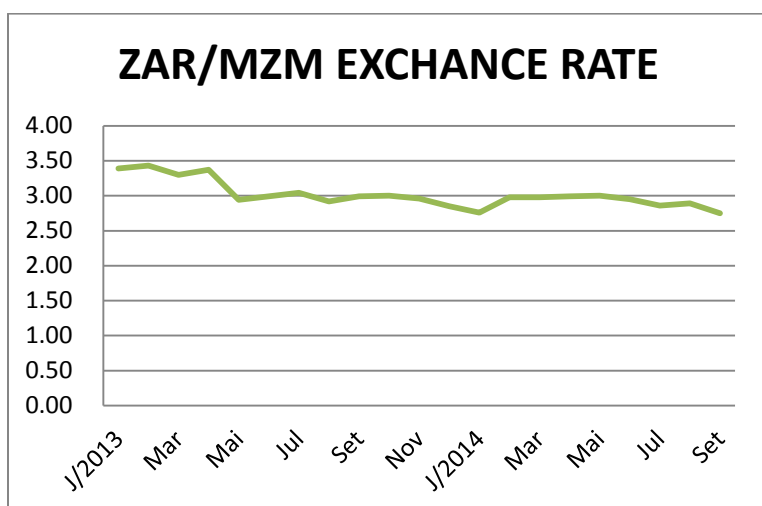
A poor business environment imposes additional direct costs that enter the pricing structure, while also creating uncertainties that businesses take into account in setting their threshold rates of return in each country. For example, it is quite possible that a retail investor would target a lower return on equity (ROE) in South Africa, whose indicators on business environment compare favorably to those in Mozambique, where target ROE is likely to be higher. Business environment considerations, therefore, have far reaching implications, including in the pricing structure of food products in the Mozambican retail sector.

EXCHANGE RATE VARIATIONS

Price differences in cities of two different countries may in part reflect exchange rate variation. If exchange rate fluctuations tend to be pronounced, retailers may use higher markups for offsetting related currency fluctuations or perceived currency risks. In the case of Mozambique though, profit margins for some of the staple food products are regulated by Decree 56/2011. Additionally, retailers did not express devaluation risk of the MT as a consideration for retail markups. It must be noted here that exchange rate is important for intertemporal price movements, but price differentials are measured using the prevailing exchange rate at a point in time. Still, continued currency fluctuations over time can result in retailers structuring their prices to lower risk.

If the Metical is in fact weaker relative to the South African Rand, the real cost of goods in Maputo will be higher simply reflecting the weaker domestic currency. In the case of the Rand to the Metical, the latter has registered strong appreciation against the Rand, gaining in value by 8.7 percent between September 2013 to September 2014, and by 23 percent since January 2013. No major instability, however, has been observed over this period. The exchange rate evolution over the last two years has been favorable to imports from South Africa, and should contribute to reduction in prices in Mozambique in terms of the Metical, as the Mozambican importer needs fewer meticais to import the same quantity of a chosen commodity from Nelspruit. Figure 14 depicts the exchange rate movements from early 2013 to September 2014.

Figure 13: ZAR/MZM Exchange rate movements



Source: Banco de Moçambique

INFRASTRUCTURE

South Africa is clearly a leader in the African continent for its level of development and economic sophistication. Neighboring countries like Mozambique therefore compete with a high benchmark. Nonetheless, given the strategic importance of trade and investment between the two countries, it is imperative for Mozambique to step up its infrastructural development in order to improve the competitiveness of its domestic industries.

The current Global Competitiveness Report (GCR) transportation infrastructure ranks Mozambique 126th out of 144 economies, while South Africa ranks at the 32nd position. Similarly, road quality of infrastructure index is rated on a scale of 1 (extremely underdeveloped—among the worst in the world) to 7 (extensive and efficient—among the best in the world). The GCR rates Mozambique at 2.1, below South Africa's rating of 4.9. Quality of electricity and telephony infrastructure rates 2.2 for Mozambique, and 3.9 for South Africa.

Infrastructural costs add to the operating costs of retailers and warehouses. As the road between Nelspruit and Maputo is quite good, truck transportation may be a less relevant issue than other infrastructural considerations, such as water, electricity, or port efficiency. All these factor into a retailer's operational costs. Additionally, improvements in transport infrastructure within Mozambique can reduce the country's dependence on imports, by supplying domestic markets with domestic production. For instance, the lack of transportation networks between the North and the South make it economically unviable to supply surplus maize between the two regions.

INFORMAL SECTOR

The prevalent practice of informal trade in Mozambique by large numbers of small-scale informal traders, known as *mukheristas*, affects the retail prices in Mozambique. Although supermarket procurement systems are not tied directly to the informal trade in the country, their linkage to the rest of the economy is undeniable. Although no formal estimates of the number of informal traders currently operating near the borders in Mozambique exist, it is believed that the number is large enough to influence the Mozambique retail sector. Most are small-scale traders but because there are so many, they have a significant influence over the retail market in Mozambique.

Since *mukheristas* operate on the margins of the formal economy, they face risks and challenges unique to their undertakings which exacerbate conditions of extreme poverty in their communities. Low literacy levels and inadequate access to information on trade regulations make *mukheristas'* operations susceptible to redundant payments and unnecessary bottlenecks. Access to finance is limited and women, in particular, are subjected to harassment and sexual abuse at the border posts for favors with clearance.

Even so, informal traders avoid paying any corporate taxes, import duties, and have minimal operating costs, including very low labor costs. Hence, they can supply the market with a relatively low-cost alternative source of supply for basic food products. This presents an unfair disadvantage for supermarkets and other formal retailers who comply by government regulations and pay the appropriate startup and operating taxes on a regular basis. Indeed, in the World Bank Enterprise survey (2007), which surveys a nationally representative group of enterprises in the country, 21.4 percent of the enterprises noted practices of the informal sector as the most challenging business environment constraint; only access to finance was rated as a more serious constraint, cited by 23.1 percent of respondents.

COMPETITION

The market system of the modern retail sector in Mozambique is relatively new, as it only took off after the country liberalized its economic policies, following the end of the civil war. While some Mozambican-owned supermarkets have emerged, large well-established South African supermarkets such as SPAR, Shoprite, and others have dominated the industry. There are only a handful of supermarkets, however, and most are concentrated in Maputo and a few other major urban centers. Shoprite has announced plans to expand to the rest of the country, and some others are following suit. The limited degree of competition allows supermarkets some latitude to charge higher markups than otherwise, especially for products that do not have restricted ceilings on profit margins. Even for products bearing legal ceilings on markups and profit margins, enforcement of the ceilings is problematic. In order to enforce the Decree, MIC must know the cost structure of the supermarkets. Technical capacity within the government to collect and analyze such information is quite weak. The government has to rely on information provided by the supermarkets, without the means to verify or analyze data.

Mozambique is a highly import-dependent country, particularly for its food products. In the case of sugar, for instance, the lack of competition is not at the supermarket level, but at import stage. If import rights are decentralized beyond DNA, imported sugar prices would see a decrease in prices. As we have seen in this study, for products with little to no domestic competition, such as processed foods, the retail markup tends to be higher. This signals a need to foster the country's domestic production of staple food products, but also encourage small and mid-scale processing plants to meet the country's growing demand for high-end consumption products. Once local producers improve capacity and efficiency to the point where they become the primary source of supply at the margin for each commodity, then local prices will be delinked from prices in Nelspruit, and the border costs will be irrelevant, except in setting a ceiling on the local price via spatial arbitrage.

7. Conclusion

We have noted that significant price differences exist across all food products between Nelspruit and Maputo. Prices in Maputo are consistently higher than in Nelspruit, in some cases by more than 50 percent. Prices between Beira and Nampula are identical for most food products, except for seasonal products such as tomatoes. No price differences were observed between Maputo, Beira, and Nampula for cooking oil and tomato paste. However, prices vary for sugar, maize flour, baked beans, and tuna. The highest price difference was observed for tomatoes—owing to its seasonal nature. As price differences within Mozambique (Beira, Nampula, and Maputo) were not observed to be significant, the analysis here has focused on price differences between Nelspruit and Maputo. A summary of the price differential between Maputo and Nelspruit is shown in Table 19 below.

Table 19: Summary of Price Differential

Commodity	Observed Price Differential (in MT)	Proportion of Price Differential		
		Moving goods to Maputo	Wholesale & retail markups	Unaccounted Residual
Sugar	24.83	30%	55%	15%
Maize Flour	18.16	47%	53%	0%
Chicken	51.33	-	-	-
Tomato	24.61	35%	65%	0%
Cooking Oil	34.50	29%	61%	10%
Baked Beans	15.60	19%	81%	N/A
Tomato Paste	31.36	11%	89%	N/A
Tuna	38.39	8%	92%	N/A

Source: Author's data collection and calculations

The most significant cause of price variation for most food products between Nelspruit and Maputo appears to be wholesale and retail markups. Markups account for as much as 81 percent to 92 percent of the price difference for processed foods, such as baked beans and tuna. Even for staple foods, markups account for at least 50 percent of the price differences between Nelspruit and Maputo.

Although it is difficult to obtain hard data on corporate operating costs and profit margins, our analysis has used plausible assumptions on key parameters, and constraints imposed by Decree 56/2011 for most of the target food products. This analysis revealed that operating costs are a significant factor determining the retail markup and the observed price differentials. Indeed, commercial rental costs in Maputo are four times as high as in Nelspruit. While labor costs in Mozambique are cheaper than in South Africa, additional costs such as higher total taxes, additional costs of operating a business in Mozambique, and other business environment constraints together make Mozambique a relatively costlier place to operate a business. These factors undoubtedly make their way into the supermarket retail markup, albeit with variation by commodity. For instance, processed foods do not face competition from the domestic market in Maputo, and are almost all imported. The retail markup for these food products is seen to be higher than for products such as tomatoes and chicken, where we observe substantial and growing domestic production.

The analysis points to some quick fixes that can help bring prices down in Maputo. For instance, transportation costs and border delays are a smaller element of the price variation. Nonetheless, improvements in customs clearance will reduce costs to some extent. Currently, as the FRIGO is transitioning within 4 kilometers of the Ressano Garcia border, shipments seem to stop at both the 4KM stop as well as the original FRIGO near Maputo. Once the transition of the FRIGO to the 4KM border is fully completed, delays due to this “double time” customs clearance will undoubtedly help reduce costs. Additionally, as Mozambique complies with the SADC protocol and eliminates almost all of its tariff barriers with SADC countries, including South Africa, prices for imported products in Mozambique should see a reduction.

However, the underlying cause for the price differences seems to be much broader. Reduction in bureaucratic red tape for operating businesses, as indicated by sub-par performance in the World Bank’s Doing business indicators, in Mozambique is one example. Infrastructural improvement is another important example. Inefficiency in the provision of basic utilities is a clear example. In addition, underdeveloped transportation systems impede the movement of surplus production in one area of the country to a deficit zone in another, as is the case for moving maize to the South of the country from the North and Central zones.

Other areas are much more difficult to address. For instance, rental costs in Maputo are quite steep, motivating supermarkets to forego storage and warehousing facilities and relying on local agents to supply products even if the supply is unreliable in quantity, quality, and timeliness. The case of sugar is one of political will. The highly protected nature of the sugar industry in Mozambique does not just protect domestic production but also gives exclusive rights to sugar producers for the quantity of sugar imported into the country. This kind of market power may bode well for protecting the sugar industry, but this comes at a price to consumers.

Due to the overwhelming evidence of retail markup as the most important element of the price difference and the presence of Decree 56/2011 for twelve staple food products that attempts to put a cap on profit margins, obvious questions about enforceability of the Decree arise. As the Decree allows for both wholesale and retail markups, supermarkets in theory at least, could charge a much higher markup if its procurement system is set up in a manner that utilizes “warehouse” services even such a warehouse is solely for legal purposes. In other words, the Decree may incentivize retailers to set up procurement systems that allow them to legally charge higher markups than intended by the policy. It must also be recognized, however, that supermarkets may have totally legitimate reasons for establishing warehouse facilities for temporary storage of shipments that are procured in bulk. Another point of note is the capacity of government agencies such as MIC and INAE to enforce the Decree in any meaningful manner. In order to enforce the Decree on maximum allowable profit margins, agencies must be able to verify the information provided by retailers and wholesalers, and must be able to analyze data to determine whether non-compliance has occurred. Our interviews confirmed that such capacity—both technical skills and staff availability—is lacking.

Our findings suggest that supermarkets charge a higher markup for processed goods—tomato paste, baked beans, and tuna. This may be because of little to no domestic competition for these products as well as the fact that unlike some staple food products, these products do not face a ceiling on profit margins. If the domestic agro-processing and manufacturing industry can beef up

production so it can supply to the supermarkets in Mozambique, even at the margin, it would help to reduce the prices of these products which currently rely almost exclusively on imports.

Our analysis also suggest that price controls and import restrictions can be counterproductive by limiting supply and creating market shortages. In the case of chicken, for instance, informal import restrictions may be one of the principal reasons behind high retail prices of chicken. Such measures may have the effect of covering up and perpetuating inefficiency in the domestic supply chain, at the expense of consumers. Instead, the aim of regulations and restrictions must be to enhance efficiency and capacity in the domestic supply chain.

Annex A. List of Interviewees

Name of Interviewee	Organization	Title
Ms. Brigit Helms	USAID/SPEED	Program Director
Mr. Domingos Mazivila	USAID/SPEED	Senior Policy Advisor
Mr. Hipolito Hamela	CAE	Senior Economist Adviser
Mr Feliberto Navalha	BM	Statistics and Studies Director
Ms Elizabeth	EXTRA	Trading Manager
Ms Denise Kortez	ACIS	Executive Secretary
Mr Aly Malla	CUSTOMS	Deputy Director for organization and working Methods
Ms Mara	Trans border trader	Trans border trader
Mr Muianga	MIC –Trade	National Director
Mr Rafael Uaiene	MSU	In-Country Coordinator
Mr Tiago Langa	INAE	Director
Mr Novela	Assoc. MUKHERO	President
Mr. Pine Opperman	Shoprite/Freshmark	Trading Manager
Mr. Jacques Richard	Shoprite Propco Mozambique Limitada	Financial Director
Mr. George Lingris	Game	Floor Manager
Mr. Shane Peterson	SPAR South Africa Lowveld Distribution Center	Export Manager
Mr. Calado Domingos M. da Silva	Ministry of Industry and Trade	Director of International Relations
Mr. Filipe Raposo	Distribuidora Nacional de Acucar (DNA)	CEO
Mr Paulo Balate	Association of Oil Producers	General Secretary
Mr. Ricardo Islanga	FRIGO	Manager
Mr. Lionel Roberts	LS Serviços	General Manager
Mr Feisal Lala	Imago Logistics	Manager

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