



National Agricultural
Marketing Council
Promoting market access for South African agriculture

Markets and Economic Research Centre



Farm-To-Retail-Price-Spreads

Issue 1: August/2015

FARM-TO-RETAIL-PRICE-SPREADS

August 2015

EXECUTIVE SUMMARY

The farm value share is the value of the farm product's equivalent in the final food product purchased by the consumers. The farm to retail price spread (FTRPS) is the difference between what the consumer pays for the food product at retail level and the value of the farm product used in that product. Price spreads measure the aggregate contributions of food manufacturing, distribution, wholesale and retail firms that transform farm commodities into final products:

- **Poultry:** The real FTRPS of fresh whole chicken increased on average by 9.32%, from April to July 2015. During the same period, the farm value share of fresh whole chicken decreased by 6.79%. The farm value share of fresh whole chicken was 54.65% in July 2015.
- **Beef:** The average real FTRPS of beef decreased by 3.21% from April to July 2015 and reached R35.76 in July 2015. The farm value share of beef increased by 1.84% from April to July 2015. The farm value share of beef was 45.50% in July 2015.
- **Lamb:** The real FTRPS of lamb decreased by 4.21% from April to July 2015 and reached R47.13/kg in July 2015. The farm value share increased by 3.18% on average from April to July and was 49.93% during July 2015.
- **Pork:** The average real FTRPS decreased from R368.04 in April 2015 to R358.19 in July 2015 (-2.68%). The farm value share decreased by 1.89% on average, from April to July 2015 and reached 35.23% during July 2015.
- **Milk:** The average real FTRPS increased from R6.59/l to R6.84/l (3.76%), from April to July 2015. From April to July 2015, the farm value share decreased, on average, by 7.38%.
- **Maize:** The real FTRPS of super maize meal decreased from R2 827.41/ton in April 2015 to R2 344.48/ton in July 2015 (-17.08%). The farm value share was 46.87% in April 2015 and increased to 57.95% in July 2015 (23.66%).
- **Wheat:** The farm value share in June 2015 was 16.98% and 17.37% for brown and white bread, respectively. On average, the FTRPS for brown bread was R17 456.15/ton of flour in June 2015. In the case of white bread, the average FTRPS was R18 101/ton of flour in June 2015.

Table of Contents

1. Introduction and Overview	1
2. Background.....	1
3. September to November 2015 outlook	1
4. Data Collection.....	2
5. Methodology and Definitions.....	2
6. Summary findings in Price Trends, Farm Values and Price Spreads.....	4

1. Introduction and Overview

The **farm to retail price spread (FTRPS)** is the difference between the farm price and the retail price of food, reflecting charges for processing, shipping, and retailing farm goods (sometimes called the marketing spread).

This publication attempts to provide more insight into the factors driving commodity and food price margins. This is the first publication of the Farm to Retail Price Spreads, emanating from the recommendations by the Food Pricing Monitoring Committee in 2003 to monitor food prices in South Africa on a regular basis. The purpose of this publication is to reflect on food price spreads during the months of April to July 2015.

NAMC compares prices paid by consumers for food with prices received by farmers for corresponding commodities. This data set reports these comparisons for a variety of foods sold through retail food stores such as supermarkets and hypermarkets. The retail costs of these foods are compared with the money received by farmers for the corresponding agricultural commodities.

The margin between farm gate prices and the price the consumer pays for selected food items is a topic that is frequently debated. In order to better understand the difference between farm gate and retail prices, farm values of selected products and the FTRPS are calculated.

2. Background

Food processors, manufacturers, wholesalers, retailers, and foodservice providers transform raw agricultural commodities into convenient food products for consumers to buy. Transportation, processing, and packaging are among the many marketing services provided. Value added to commodities through marketing services accounts for a substantial portion of consumer food prices.

NAMC compares the prices paid by consumers for food with the prices received by farmers for their corresponding commodities. NAMC's goal is to inform policymakers, agriculture, and the general public about the value added to agricultural commodities by the food marketing system. This data set reports these comparisons for a variety of foods sold through retail food stores such as supermarkets and hypermarkets.

Farm-to-consumer price spreads may increase or decrease over time with changes in the mix and prices of services required to transform raw agricultural commodities into consumer food products. Long-run trends therefore reflect a variety of underlying economic conditions, including changes in the technology used to process and distribute food as well as changes in the price of inputs, such as labour and energy.

3. September to November 2015 outlook

Food price inflation in South Africa increased by 4.4%, in July 2015. This increase is due to second round inflationary effects, largely driven by moderate increases in fuel prices and costs of utilities such as electricity.

The moderate food inflation rates of the previous months are however expected to escalate in the third quarter of 2015 as a result of pressures related to the weakening exchange rate. The rand hit an all-time low against the dollar in the third week of August and despite some recovery, it is expected to remain under pressure due to sluggish growth in China. The effect of this is that all commodity prices (in Rand terms) will increase, and this would filter through to retail food prices towards the end of the third quarter. Food prices will however not only be effected by commodity prices. Cost within the value chain could also contribute to escalating retail prices as a result of the significant exchange rate depreciation. Decreasing oil prices could serve as a mitigating factor to this. Currently, oil markets are over supplied with weak demand from China. This has resulted in oil prices moving to lower levels.

From the above it seems like inflationary pressures associated with imports and supply is a valid prospect. Tepid demand in this period might however serve as an alleviating factor during the rest of 2015. The expectation of dampened demand is largely driven by increased pressures on consumers' disposable income. These pressures include increased interest rates and higher cost of utilities such as electricity.

In terms of specific food products, maize prices in the next quarter are expected to increase due to the exchange rate issues referred to above, as well as adverse weather conditions in the US. If these weather conditions persist upward

pressure on maize meal prices can be expected to continue until the end of 2015. In the case of wheat, any movement in the import parity price of wheat is now mainly determined by the exchange rate as the world price is trading significantly below the reference price of \$294/ton. This implies that the South African market is decoupled from world price market movements by means of an variable import levy that is derived from the difference between the world price and the reference price. Vegetable prices are expected to move sideways in this period due to increased supply associated with seasonal effects. Despite increased slaughtering, beef prices are supported by increased exports of high value cuts to regions such as the Middle East. Over the next three months it is anticipated that this will be exasperated as a result of higher input costs associated with maize.

Key factors to look out for during the next three months are weather conditions of the main grain production areas in the world. Weather conditions in the US could provide support for maize prices if it is dryer than expected which will cause an upward movement in maize meal prices towards the end of the outlook period.

4. Data Collection

Urban food prices reported on in this media release are obtained from Statistics South Africa (StatsSA). The prices obtained are regarded as being representative of changes in food prices in South Africa for the following reasons:

StatsSA price data on all products are sampled from approximately 800 different data collection points across the country on a monthly basis. Food price data is not collected from all the data collection points since some stores that are sampled do not necessarily sell food. In addition, certain food prices are not sampled in all provinces. For example, the price of cheddar cheese is collected from Gauteng, Western Cape, Eastern Cape, KwaZulu-Natal, Free State, Northern Cape, North West and Mpumalanga. Food price data collection by StatsSA also involves fieldwork where price collectors visit stores to collect data, after which such data undergoes a rigorous process to ensure its integrity. The basket of food products included was derived from the Income and Expenditure Survey of 2005/06 compiled by StatsSA to ensure that the basket is representative of consumer spending on food. For more detailed information on the methodological process involved in the collection of prices visit: http://www.statssa.gov.za/cpi/documents/CPI_Sources_Methods.pdf.

5. Methodology and Definitions

The methodology (Food Price Monitoring Committee report, 2004) behind this data series consists of four parts:

Important formulas:

- The farm value is the value of the farm product's equivalent in the final food product purchased by the consumers.
- Retail value is the price or the value of a given product at the retail level of a given commodity value chain.
- The Farm-to-Retail Price Spread (FTRPS) = Retail value – Farm Value
- Farm Value Share = Farm Value divided by the Retail Value

a) Wheat-to-bread (white and brown) margins

The different prices in the five main levels in the value chain are: the average producer price that the farmer receives as reported by SAFEX; the mill door price; the bakers' wholesale price; and the consumer price. However, in this exercise only the average producer price and the consumer price will be used. As with the maize-to-maize meal, the calculations are based on the following assumptions:

- The producer price (also known as the farm gate price) is derived from the SAFEX spot price minus the average transport differential and the handling costs.
- The transport costs from the farm gate to the silo are calculated as the average SAFEX transport differential to all the major maize silos.
- The handling costs are based on responses from millers about their estimated average handling costs and the storage day tariffs per tonne. The input from the millers is therefore crucial in this case.
- It is assumed that the millers are closer to the silos than the farmers.
- There is a 4-month time lag between the monthly average SAFEX spot price and the average monthly retail price.

- The cost of bread flour between the milling and baking divisions can be neglected, as this is an internal transfer within the group and not determined by market forces. Thus, to determine the cost of production of bread there is no separate margin for the milling and baking divisions.
- The extraction rates between brown and white bread differ, thus, the extraction rate from 1 tonne of wheat is 0.81 tonnes of brown bread flour or 0.76 tonnes of white bread flour. Similarly, 1 tonne of brown bread flour can produce 2 275 loaves of brown bread while 1 tonne of white bread flour produces 2 135 loaves (standard 700g loaves). Thus from 1 tonne of wheat, 1 842 loaves of brown bread or 1 622 loaves of white bread can be produced.

The producer price of wheat is calculated by taking the SAFEX price and subtracting the farmers' transport to the silo, as well as the handling and storage costs.

Farm value is calculated by dividing the farm gate price by respective extraction rates, thus 0.76 and 0.81 for white bread and brown bread, respectively.

Retail value is calculated by multiplying price of white bread and brown bread by number of loaves that 1 ton of flour produces, i.e. 2 135 and 2 278 respectively.

The farm value share is the proportion farmers get from the amount consumers spend on the market basket of food purchased in retail grocery stores. This is equal to farm value/retail value.

b) Maize-to-maize meal (super and special) margins

The prices of the four main nodes in the food chain are the average producer price, the mill door price, the list price, and the consumer price. In our case only the average producer prices and retail prices will be used to estimate the farm value, farm to retail price spread, retail value and farm value share. The calculations of these items are based on the assumptions that:

- The producer price (also known as the farm gate price) is derived from the SAFEX spot price minus the average transport differential and the handling costs.
- The transport costs from the farm gate to the silo are calculated as the average SAFEX transport differential to all the major maize silos. It is important to note that these differentials are, still, based on railway costs, despite the fact that there has been a gradual shift away from railway towards road transport. Therefore, these costs might not be a true reflection of the actual costs. The transport/distribution costs might be higher.
- The handling costs are based on responses from millers about the estimated average handling costs and the storage day tariffs per ton. The input from the millers is therefore crucial in this case.
- It is assumed that the millers are located closer by the silos than the farmers are. How can we best estimate the location of the farmers to the silo?
- There is a 4-month time lag between the average monthly SAFEX spot price and the average monthly retail price. The Food Price Monitoring Committee report states that this assumption is supported by statistical tests, as well as the general opinion of the industry.
- Specific mill site costs are only available on an annual base. Therefore, the monthly mill site costs are kept constant for every year.

Table 1.1 below, provides a summary of the extraction rates of the various types of maize meal, as sourced from chamber of milling. It is necessary to make a distinction between the various types of maize meal due to their different extraction rates, which influence the margins and spreads of the millers significantly. More than 40% of all the maize meal sold in the SA market is super maize meal and this percentage is increasing. Special maize meal sales make up 30% of total sales. Although an extraction rate of 62.5% is reported for super maize meal, some industry specialists regard this figure as "conservative". The best selling super maize meal brands, IWISA and ACE, only have a 55% extraction rate.

Table 1: Extraction rate of various maize meal types

Type	Extraction rate (%)
Super	62.5
Special	78.7
Sifted	88.7
Unsifted	98.7

The farm value for one tonne of 'super' maize meal is calculated by dividing the farm gate price by the average extraction rate (62.5% for super maize meal). This implies that one tonne of super maize meal can be produced from 1.6 tonnes of raw white maize.

The retail value for 1 tonne of super maize meal is calculated by multiplying the retail price (R/specific size) by 1000/that specific size. For example, conversion for 5kg bag of maize meal (at R20.00/bag) will be done by multiplying 20 by 1 000/5 (200). This is equal to R4 000/ton.

Farm-to-retail price spread is the difference between farm value and retail value (Farm value – Retail value).

The farm value share is the proportion farmers get from the amount consumers spend on the market basket of food purchased in retail grocery stores. This is equal to farm value/retail value.

c) Beef margins

The first assumption defines the average slaughtering weight of one head of cattle as equal to 220 kilogram. Of the 220 kilogram, 42.24 kilogram consist of parts, which do not form part of any direct food related items, and include off-cuts, fat, kidneys and bones. The second assumption relates to allocating certain weights to the different meat cuts: Rump steaks are allocated a weight of 16.72kg, sirloin steaks 11.22kg, topside beef 16.94kg, chuck 23.09kg and brisket 17.6kg.

The farm value of beef is thus calculated by firstly determining the average weight of the specific cuts in question. This would mean that from a 220 kg carcass weight, 85.57 kg are made up by cuts specified above. To calculate the farm value the weight of the cuts, that is 85.57kg is multiplied with the weighted average monthly slaughter price of A2 quality beef (per kg).

The retail value of a selected cut is calculated by multiplying its price (R/kg) by its weight. The total retail value of these 5 cuts is obtained by adding their specific retail value.

Farm-to-retail price spread is the difference between farm value and retail value (Farm value – Retail value).

The farm value share is the proportion farmers get from the amount consumers spend on the market basket of food purchased in retail grocery stores. This is equal to farm value/retail value.

6. Summary findings in Price Trends, Farm Values and Price Spreads

The farm value share is the value of the farm product's equivalent in the final food product purchased by the consumers. The FTRPS is the difference between what the consumer pays for the food product at retail level and the value of the farm product used in that product. Price spreads measure the aggregate contributions of food manufacturing, distribution, wholesale and retail firms that transform farm commodities into final products:

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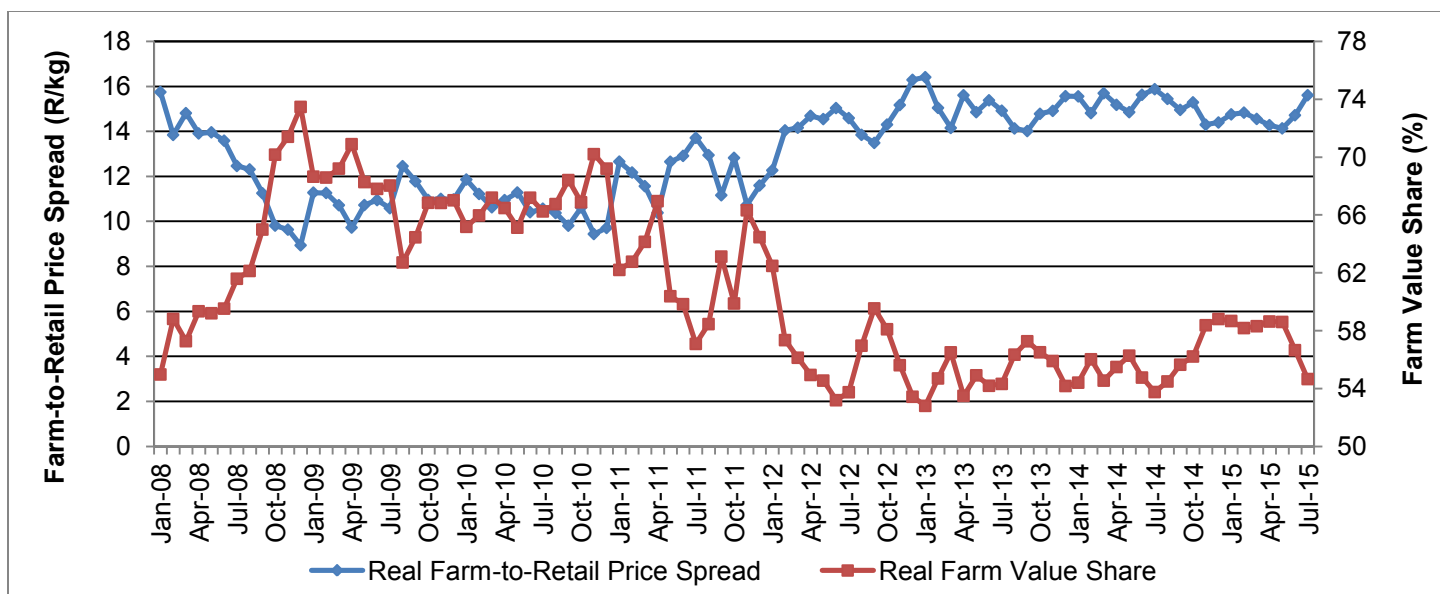


Figure 1: Real farm-to retail price spread and farm value share of poultry

Source: Stats SA, 2015; AMT, 2015 and own calculations

- **Beef:** The average real FTRPS of beef decreased by 3.21% from April to July 2015 and reached R35.76 in July 2015. The farm value share of beef increased by 1.84% from April to July 2015. The farm value share of beef was 45.50% in July 2015.

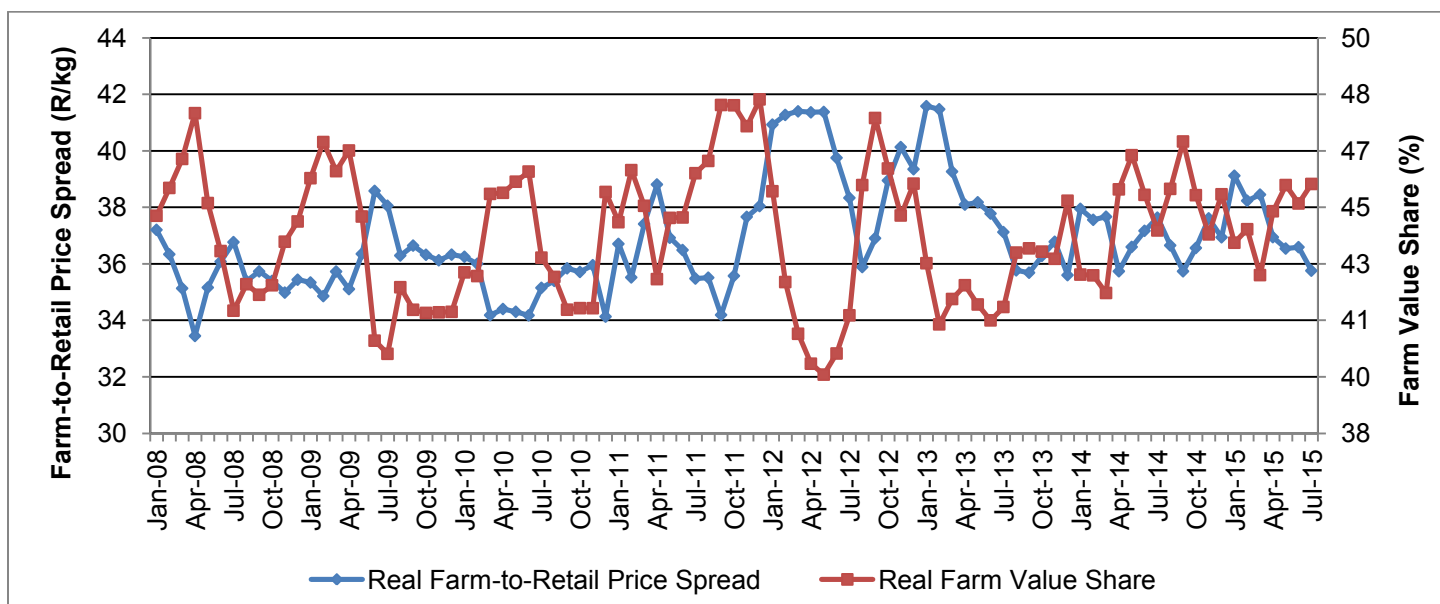


Figure 2: Real farm-to-retail price spread and farm value share for beef

Source: Stats SA, 2015; AMT, 2015 and own calculations

- **Lamb:** The real FTRPS of lamb decreased by 4.21% from April to July 2015 and reached R47.13/kg in July 2015. The farm value share increased by 3.18% on average from April to July and was 49.93% during July 2015.

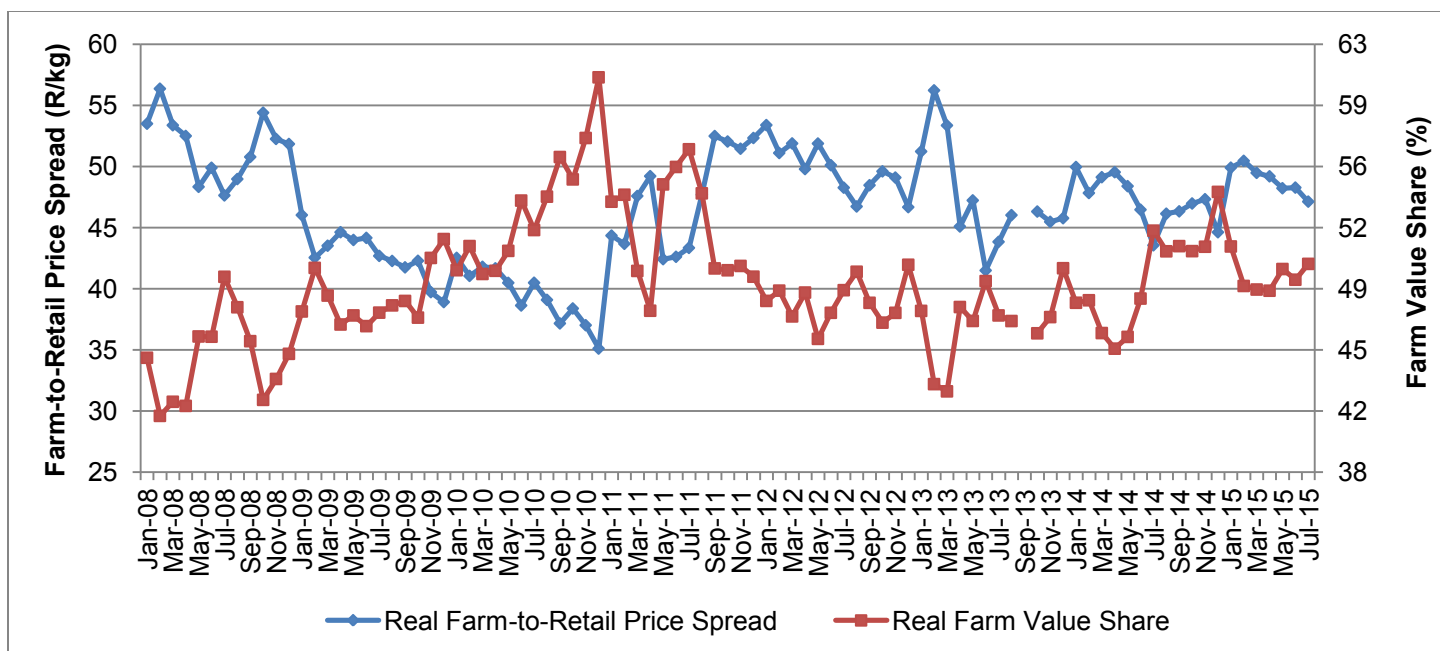


Figure 3: Real farm-to-retail price spreads and farm value share of lamb

Source: Stats SA, 2015; AMT, 2015 and own calculations

- Pork:** The average real FTRPS decreased from R368.04 in April 2015 to R358.19 in July 2015 (-2.68%). The farm value share decreased by 1.89% on average, from April to July 2015 and reached 35.23% during July 2015.

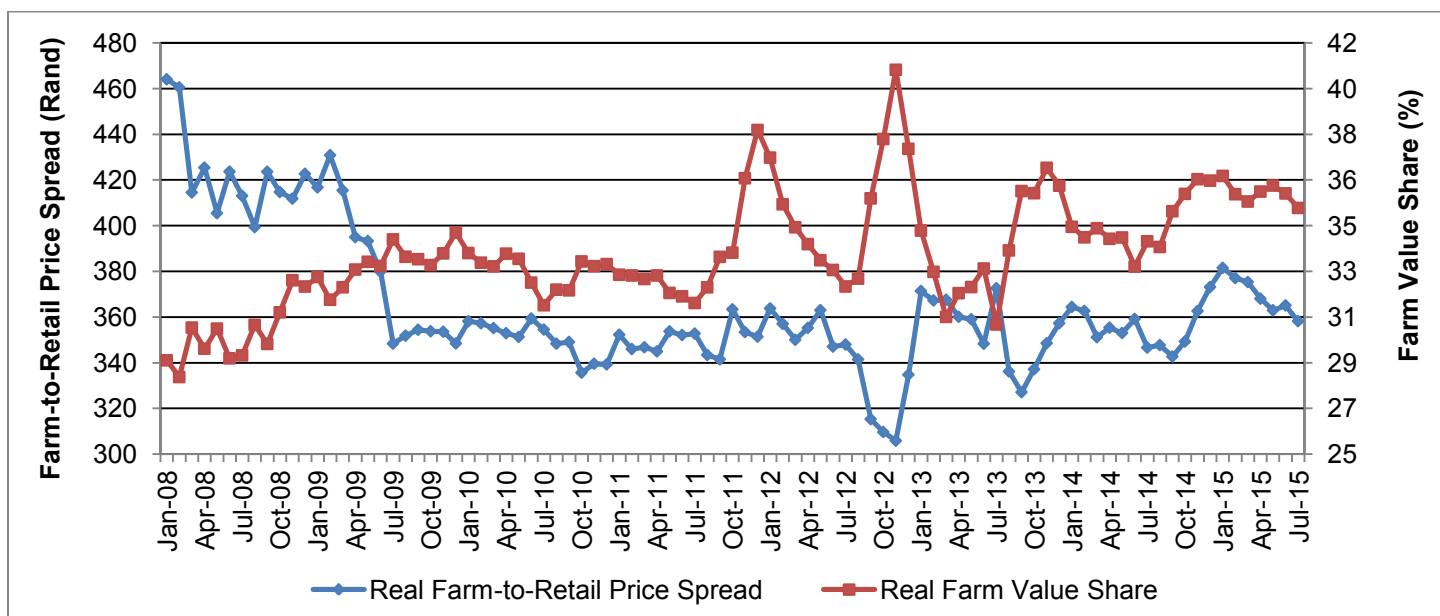


Figure 4: Real farm-to-retail price spread and farm value share of pork

Source: Stats SA, 2015; AMT, 2015 and own calculations

- Milk:** The average real FTRPS increased from R6.59/l to R6.84/l (3.76%), from April to July 2015. From April to July 2015, the farm value share decreased, on average, by 7.38%.

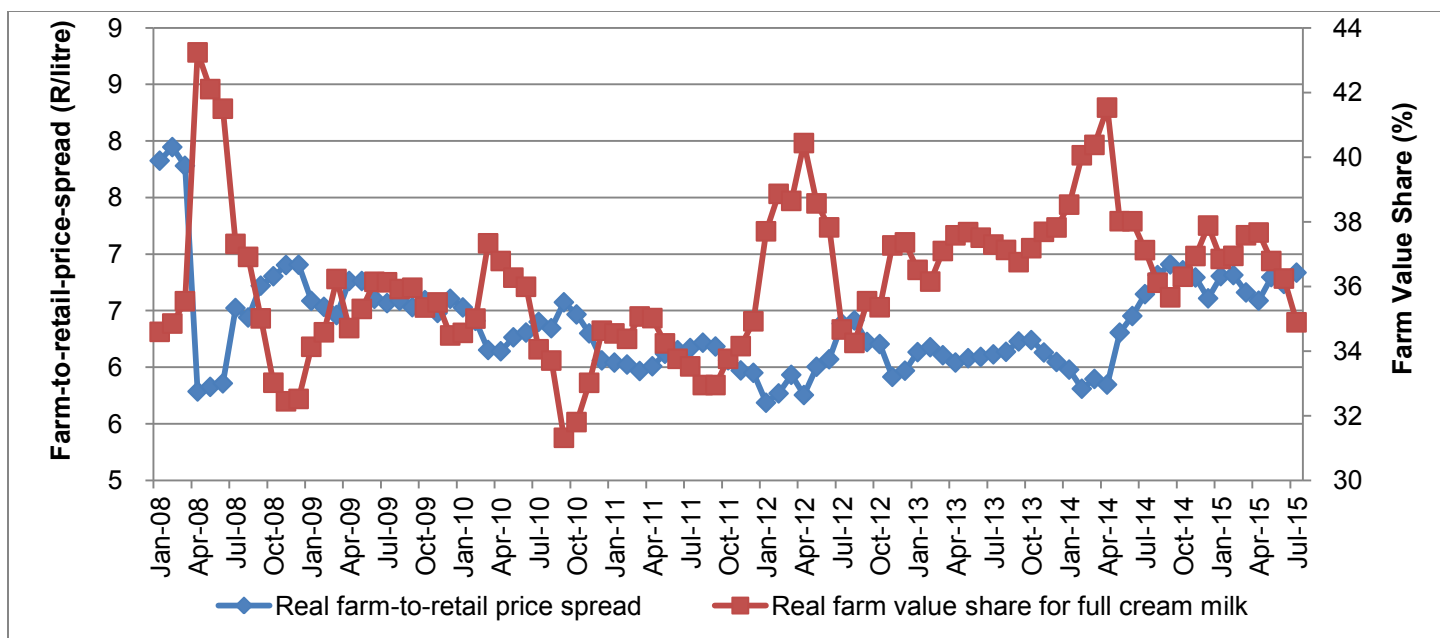


Figure 5: Real farm-to-retail price spread and farm value share of milk

Source: Stats SA, 2015; AMT, 2015 and own calculations

- **Maize:** The real FTRPS of super maize meal decreased from R2 827.41/ton in April 2015 to R2 344.48/ton in July 2015 (-17.08%). The farm value share was 46.87% in April 2015 and increased to 57.95% in July 2015 (23.66%).

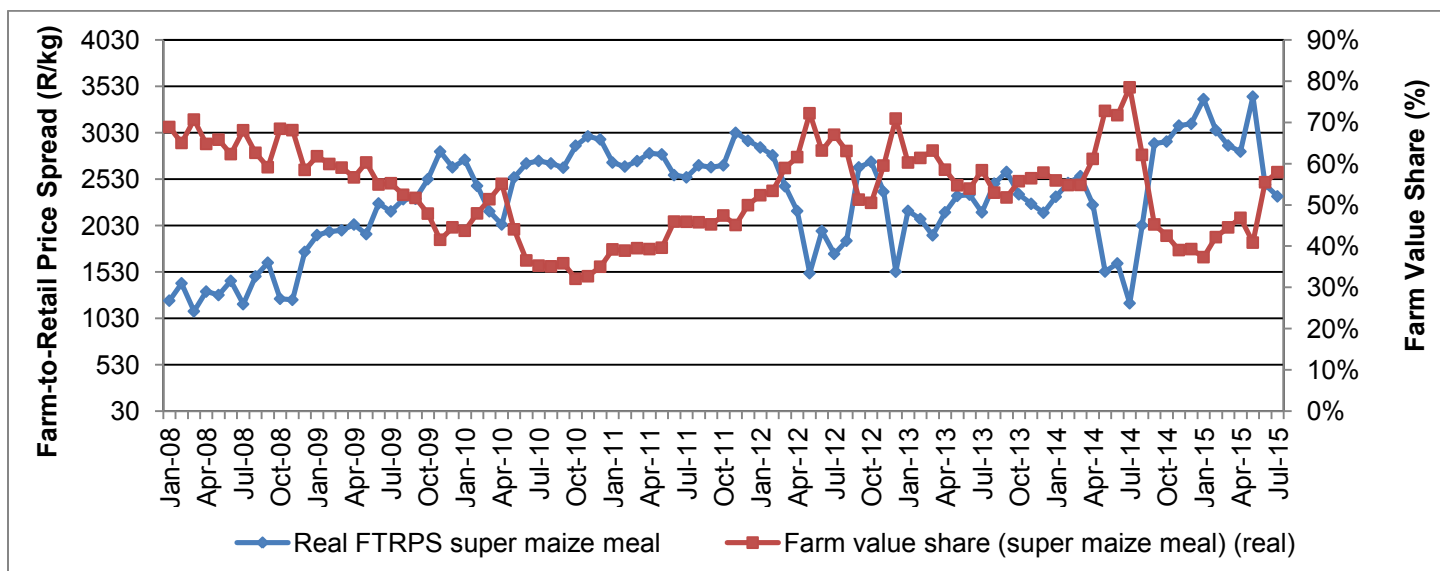


Figure 6: Real farm-to-retail price spread and farm value share of maize

Source: Stats SA, 2015; AMT, 2015 and own calculations

- **Wheat:** The farm value share in June 2015 was 16.98% and 17.37% for brown and white bread, respectively. On average, the FTRPS for brown bread was R17 456.15/ton of flour in June 2015. In the case of white bread, the average FTRPS was R18 101/ton of flour in June 2015.

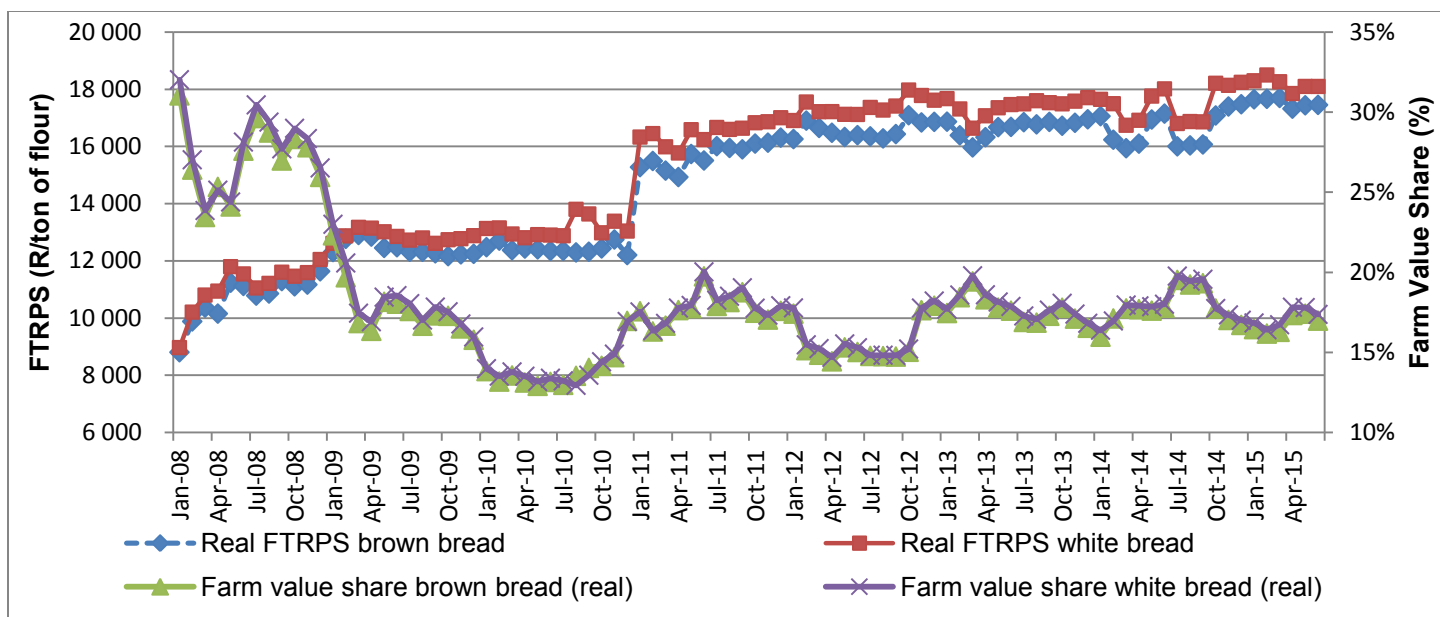


Figure 7: Real farm-to-retail price spread and farm value share of wheat

Source: Stats SA, 2015; AMT, 2015 and own calculations

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StatsSA is acknowledged for assistance provided to the NAMC in terms of food price data.

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