National Agricultural Marketing Council

Promoting market access for South African agriculture

Markets and Economic Research Centre

Farm-To-Retail-Price-Spreads

Issue: Aug/2016

MEDIA RELEASE

FARM-TO-RETAIL-PRICE-SPREADS

Aug 2016

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 4.88 %, from May to July 2016. During the same period, the real farm value share of fresh whole chicken decreased by 5.11 %. The real farm value share of fresh whole chicken reached 50.20 % in July 2016. From July 2015 to July 2016, **year-on year**, real FTRPS increased by 8.94 %, while the real farm value share decreased by 8.15 %.
- **Beef:** The average real FTRPS of class A2/A3 beef decreased by 4.00 % from May to July 2016 and reached R36.67 in July 2016. The real farm value share of beef increased by 1.23 % from May to July 2016 and reached 45.82 % in July 2016. From July 2015 to July 2016, **year-on year**, real FTRPS and real farm value share increased by 2.55 % and 0.71 %, respectively.
- **Lamb:** The real FTRPS of class A2/A3 lamb decreased by 8.68 % from May to July 2016 and reached R49.59/kg in July 2016. The real farm value share increased by 7.78 %, on average, from May to July 2016 and reached 49.40 % in July 2016. From July 2015 to July 2016, **year-on year**, real FTRPS increased by 5.61 %, while the real farm value share decreased by 1.43 %.
- **Pork:** The average real FTRPS decreased from R349.20 in May to R347.09 in July 2016 (-0.60 %). The real farm value share also decreased by 2.14 %, on average, from May to July 2016 and reached 34.67 % in July 2016. From July 2015 to July 2016, **year-on year**, real FTRPS and real farm value share decreased by 3.10 %, and 1.61 %, respectively.
- **Milk:** The average real FTRPS for full cream milk decreased from R6.87/l to R6.83/l (0.61 %), from May to July 2016. The real farm value share increased, on average, by 1.91 %, from May to July 2016. From July 2015 to July 2016, **year-on year**, the real FTRPS decreased by 0.15 % whilst the real farm value share increased by 3.88 %.
- **Maize:** The real FTRPS of super maize meal (5kg) increased from R1 418.08/ton in May to R1 526.85/ton in July 2016 (7.67 %). The real farm value share of super maize meal (5kg) was 80.89 % in May and decreased to reach 79.12 % in July 2016 (-2.19 %). From July 2015 to July 2016, **year-on year**, the real FTRPS decreased by 36.02 %, while the real farm value share increased by 38.31 %.
- **Wheat:** In July 2016 the real farm value shares reached 19.43 % and 20.12 % for brown and white bread, respectively. The real FTRPS for brown bread reached R17 659.54/ton of flour in July 2016 and in the case of white bread, R18 025.05/ton of flour. From July 2015 to July 2016, **year-on year**, real FTRPS increased by 2.41 % for brown bread and by 0.02 % for white bread. During the same period, real farm value share increased by 12.34 % and 14.44 % for brown and white bread, respectively.

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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. The purpose of this publication is to reflect on food price spreads during the months of May to July 2016.

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's goal is to inform policymakers, agriculture, and the general public about the value added to agricultural commodities by the food marketing system.

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. Data Collection

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

Stats SA price data on all products are sampled from approximately 800 different data collections 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 Stats SA 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 Stats SA 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.Stats SA.gov.za/cpi/documents /CPI_Sources_Methods.pdf.

4. Methodology and Definitions

The methodology behind this data series consists of four parts (Food Price Monitoring Committee report, 2003):

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 ton. 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 an approximate 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 ton of wheat is between 0.85 and 0.89 tons of brown bread flour or between 0.76 and 0.80 tons of white bread flour. Similarly, 1 ton of brown bread flour can produce between 2 151 and 2 198 loaves of brown bread while 1 ton of white bread flour between 2 083 and 2 174 loaves (standard 700g loaves). Thus from 1 ton of wheat, between 1 868 and 1 914 loaves of brown bread or between 1 652 and 1 667 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 between 0.76 and 0.80 for white bread and between 0.85 and 0.89 for brown bread, respectively.

Retail value is calculated by multiplying the price of white bread and brown bread by the number of loaves that 1 ton of flour produces, i.e. between 2 151 and 2 1 98 for brown bread or between 2 083 and 2 174 for white bread, 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 an approximate 4-month time lag between the average monthly SAFEX spot price and the average monthly retail price. The Food Price Monitoring Committee (2003) 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 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 ton "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 1 ton of super maize meal can be produced from 1.6 tons of raw white maize.

The retail value for 1 ton of super maize meal is calculated by multiplying the retail price (R/specific size) by 1 000/that specific size. For example, conversion for 5 kg 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 kg. Of the 220 kg: 42.24 kg 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 16.72 kg, sirloin steaks 11.22 kg, topside beef 16.94 kg, chuck 23.09 kg and brisket 17.6 kg.

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 85.57 kg is multiplied with the weighted average monthly slaughter price of A2/A3 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.

5. Findings in Price Trends, Farm Values and Price Spreads

The farm value share (measured in percentage terms) 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:

- **Poultry:** The real FTRPS of fresh whole chicken increased on average by 4.88 %, from May to July 2016. During the same period, the real farm value share of fresh whole chicken decreased by 5.11 %. The real farm value share of fresh whole chicken reached 50.20 % in July 2016. From July 2015 to July 2016, **year-on year**, real FTRPS increased by 8.94 %, while the real farm value share decreased by 8.15 %.

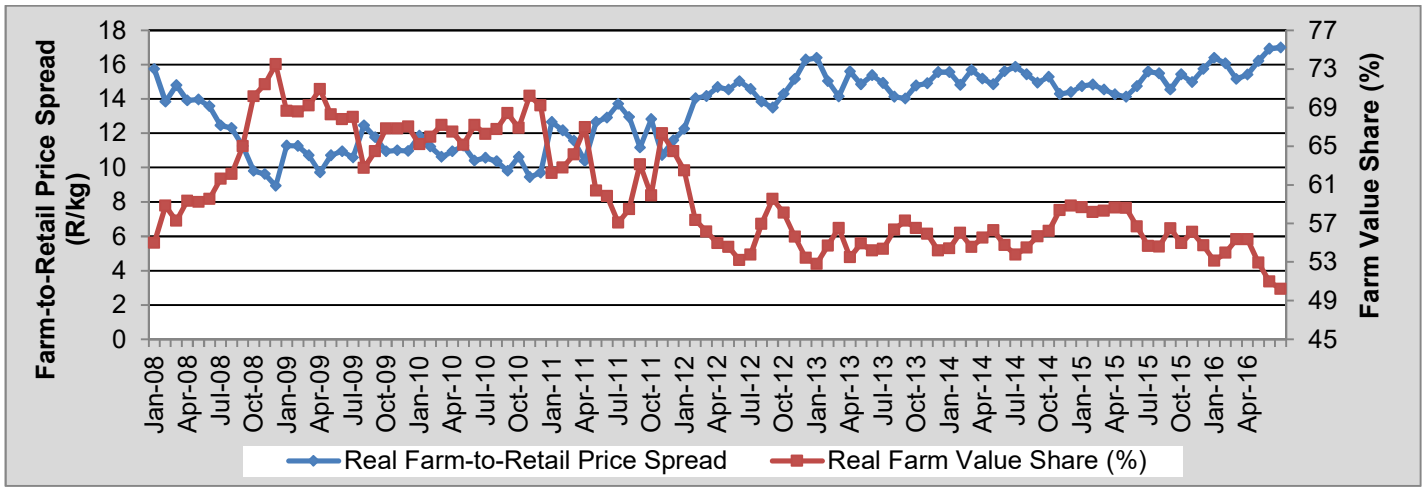

Figure 1: Real farm-to retail price spread and farm value share of poultry
Source: Stats SA, 2016; AMT, 2016 and own calculations

- **Beef:** The average real FTRPS of class A2/A3 beef decreased by 4.00 % from May to July 2016 and reached R36.67 in July 2016. The real farm value share of beef increased by 1.23 % from May to July 2016 and reached 45.82 % in July 2016. From July 2015 to July 2016, **year-on year**, real FTRPS and real farm value share increased by 2.55 % and 0.71 %, respectively.

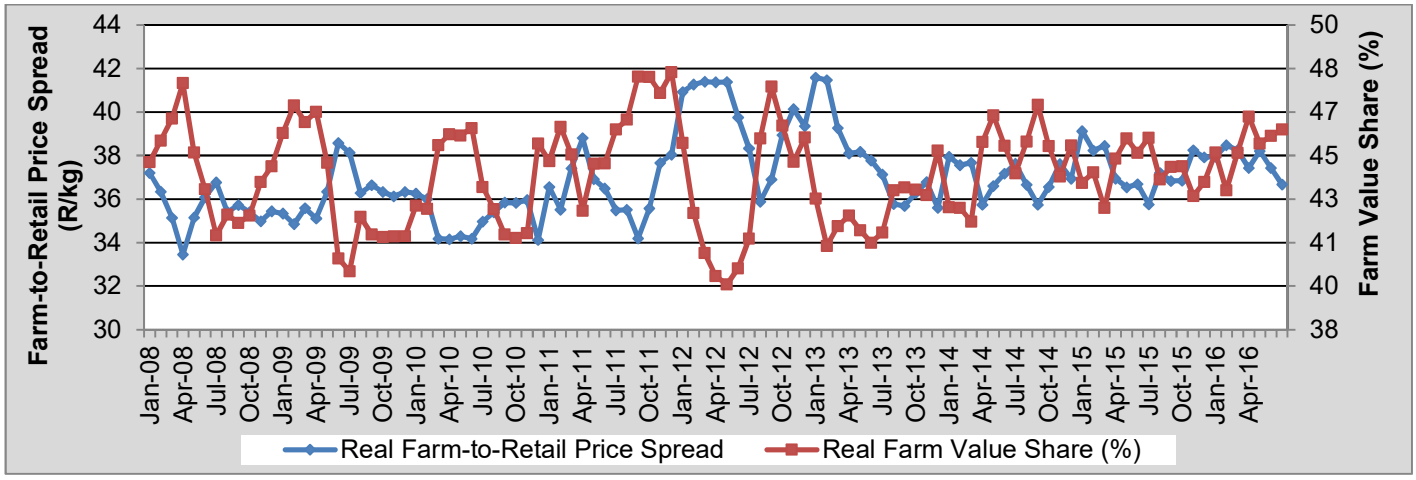

Figure 2: Real farm-to-retail price spread and farm value share for beef
Source: Stats SA, 2016 AMT, 2016 and own calculations

- **Lamb:** The real FTRPS of class A2/A3 lamb decreased by 8.68 % from May to July 2016 and reached R49.59/kg in July 2016. The real farm value share increased by 7.78 %, on average, from May to July 2016 and reached 49.40

% in July 2016. From July 2015 to July 2016, **year-on year**, real FTRPS increased by 5.61 %, while the real farm value share decreased by 1.43 %.

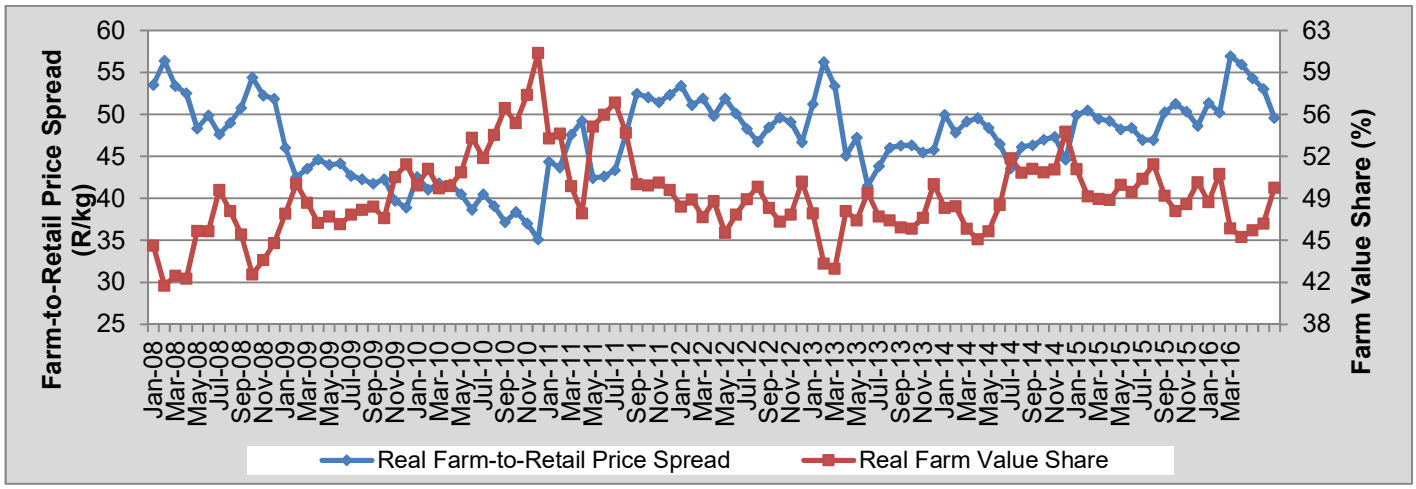

Figure 3: Real farm-to-retail price spreads and farm value share of lamb
Source: Stats SA, 2016; AMT, 2016 and own calculations

- **Pork:** The average real FTRPS decreased from R349.20 in May to R347.09 in July 2016 (-0.60 %). The real farm value share also decreased by 2.14 %, on average, from May to July 2016 and reached 34.67 % in July 2016. From July 2015 to July 2016, **year-on year**, real FTRPS and real farm value share decreased by 3.10 %, and 1.61 %, respectively.

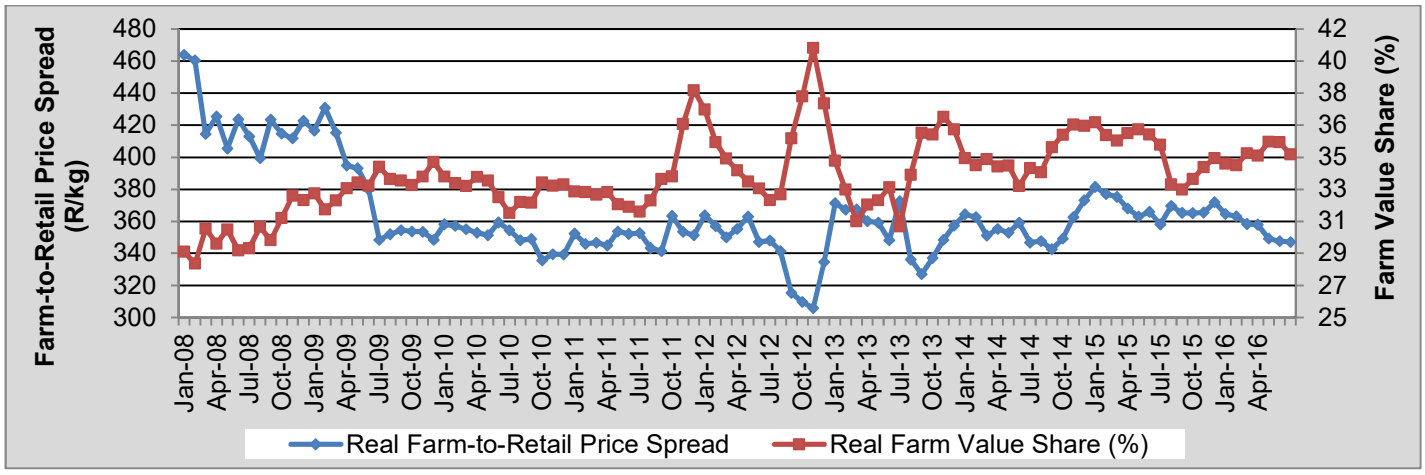

Figure 4: Real farm-to-retail price spread and farm value share of pork
Source: Stats SA, 2016; AMT, 2016 and own calculations

- **Milk:** The average real FTRPS for full cream milk decreased from R6.87/l to R6.83/l (0.61 %), from May to July 2016. The real farm value share increased, on average, by 1.91 %, from May to July 2016. From July 2015 to July 2016, **year-on year**, the real FTRPS decreased by 0.15 % whilst the real farm value share increased by 3.88 %.

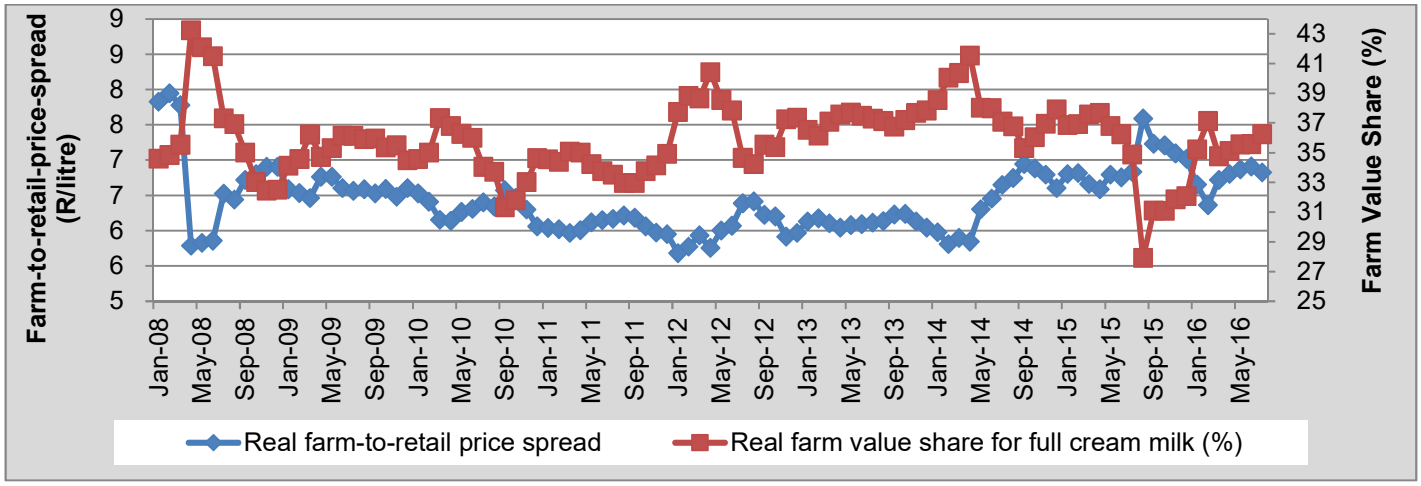

Figure 5: Real farm-to-retail price spread and farm value share of milk
Source: Stats SA, 2016; AMT, 2016 and own calculations

- **Maize:** The real FTRPS of super maize meal (5kg) increased from R1 418.08/ton in May to R1 526.85/ton in July 2016 (7.67 %). The real farm value share of super maize meal (5kg) was 80.89 % in May and decreased to reach 79.12 % in July 2016 (-2.19 %). From July 2015 to July 2016, **year-on year**, the real FTRPS decreased by 36.02 %, while the real farm value share increased by 38.31 %.

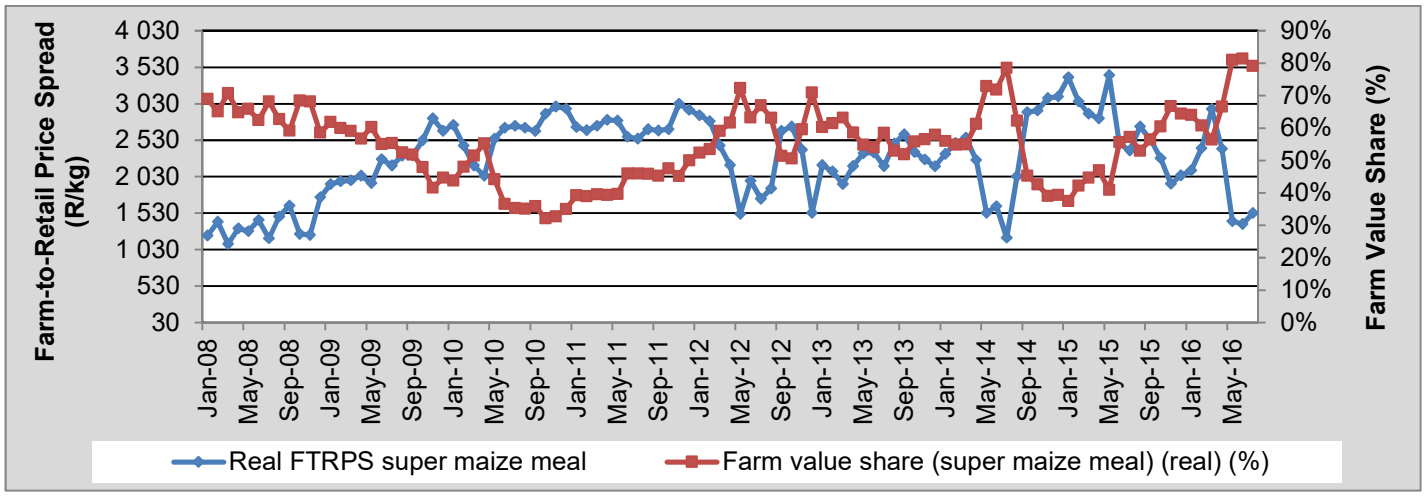

Figure 6: Real farm-to-retail price spread and farm value share of super maize meal 5kg
Source: Stats SA, 2016; AMT, 2016 and own calculations

- **Wheat:** In July 2016 the real farm value shares reached 19.43 % and 20.12 % for brown and white bread, respectively. The real FTRPS for brown bread reached R17 659.54/ton of flour in July 2016 and in the case of white bread, R18 025.05/ton of flour. From July 2015 to July 2016, **year-on year**, real FTRPS increased by 2.41 % for brown bread and by 0.02 % for white bread. During the same period, real farm value share increased by 12.34 % and 14.44 % for brown and white bread, respectively.

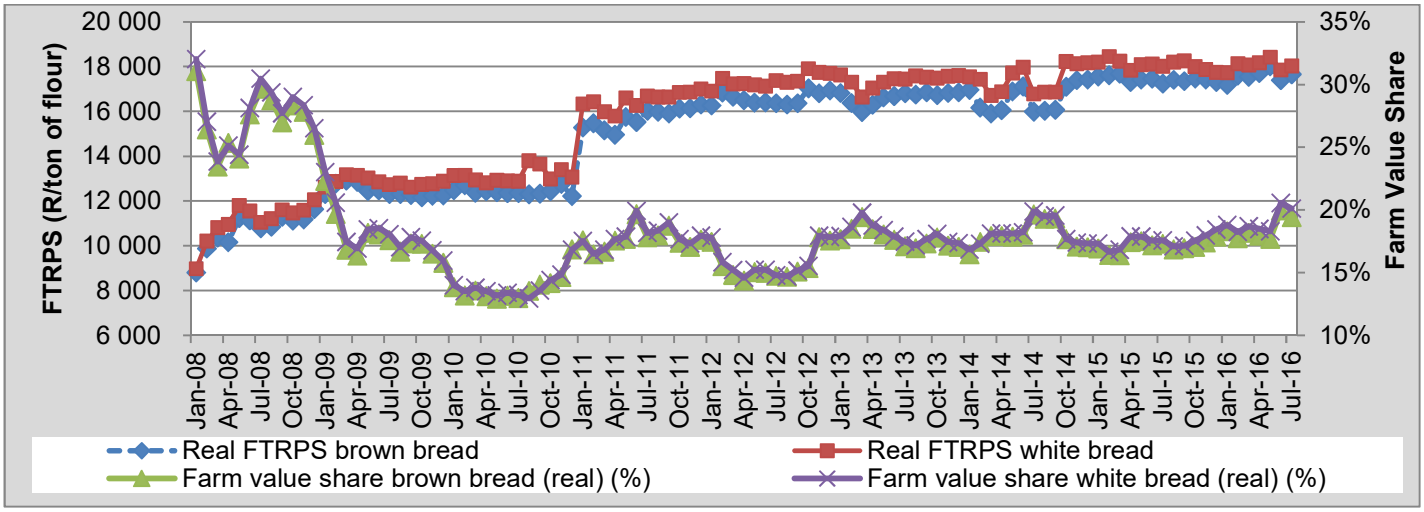

Figure 7: Real farm-to-retail price spread and farm value share of wheat
Source: Stats SA, 2016; AMT, 2016 and own calculations

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