



National Agricultural  
Marketing Council  
Promoting market access for South African agriculture

# Markets and Economic Research Centre



## Farm-to-Retail-Price-Spreads

*Issue: Feb/2017*

# FARM-TO-RETAIL-PRICE-SPREADS

Feb 2017

*The basket of food products included in this publication is derived from the latest release of the Income and Expenditure Survey (IES) of 2014/15', compiled by Statistics South Africa (Stats SA). This basket is to be representative of consumer spending on food and, as a result of the IES 2014/15 release, a re-basing was done to the CPI base year (2016=100).*

*In the latest price information, Stats SA introduced additional products as from January 2017, and excluded some of the pre-January 2017 products. The farm-to-retail-price-spreads below will now have to be re-calculated using the new information, taking additional observations/products obtained to include/exclude in the new spread. As a result, monthly and annual comparisons in this publication, will not be possible in the short-term.*

*The NAMC will continue to investigate and involve industry experts in compiling a new product base, based on the latest consumer behaviour. Cognisance of the above background should therefore be taken in interpreting the data.*

## 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 2.05 %, from November 2016 to January 2017. During the same period, the real farm value share of fresh whole chicken increased by 0.52 %. The real farm value share of fresh whole chicken reached 57.82 % in January 2017. From January 2016 to January 2017, **year-on-year**, real FTRPS decreased by 10.63 %, while the real farm value share increased by 8.87 %.
- **Beef:** *Please note that the FTRPS of Beef will change as an additional cut, offal, is monitored by Stats SA from January 2017 onwards. Offal will therefore be included in the calculation of the spread.*  
The real FTRPS of class A2/A3 beef increased by 3.25 % from November 2016 to January 2017 and reached R46.88 in January 2017. The real farm value share of beef decreased by 0.55 % from November 2016 to January 2017 and reached 45.05 % in January 2017. From January 2016 to January 2017, **year-on-year**, real FTRPS decreased by 1.12 %, while real farm value share increased by 0.29 %.
- **Lamb:** *Please note that the FTRPS of Lamb will change as an extra cut, offal, is now monitored by Stats SA from January 2017 onwards, but the cut utilised historically, Saddle Chops, has now been excluded from the new 2016 basket. Offal will therefore be included in the new calculation of the spread, whilst Saddle Chops will be removed. In order to make any comparison with previous years', Saddle Chops will be removed in the historic time series data as well.*  
The real FTRPS of class A2/A3 lamb increased by 149.05 % from November 2016 to January 2017 and reached R9.36/kg in January 2017. The real farm value share decreased by 6.81 %, on average, from November 2016 to January 2017 and reached 87.82 % in January 2017. From January 2016 to January 2017, **year-on-year**, real FTRPS increased by 59.86 %, while the real farm value share decreased by 3.56 %.
- **Pork:** The real FTRPS of pork increased from R432.15 in November 2016 to R 460.30 in January 2017 (6.51 %). The real farm value share decreased by 1.33 %, on average, from November 2016 to January 2017 and reached 36.46 % in January 2017. From January 2016 to January 2017, **year-on-year**, real FTRPS and real farm value share increased by 1.02 % and 6.80 %, respectively.
- **Milk:** The real FTRPS for full cream milk increased from R8.84/ℓ to R8.85/ℓ (0.02 %), from November 2016 to January 2017. The real farm value share decreased, on average, by 1.36 %, from November 2016 to January 2017. From

January 2016 to January 2017, **year-on-year**, the real FTRPS increased by 6.42 % while the real farm value share decreased by 2.86 %.

- **Maize:** The real FTRPS of super maize meal (5kg) increased from R2 836.11/ton in November 2016 to R3 957.05/ton in January 2017 (39.52 %). The real farm value share of super maize meal (5kg) was 69.80 % in November 2016 and decreased to reach 58.86 % in January 2017 (-15.68 %). From January 2016 to January 2017, **year-on-year**, the real FTRPS increased by 49.81 %, while the real farm value share decreased by 8.07 %.
- **Wheat:** In January 2017, the real farm value shares reached 16.48 % and 17.18 %, for brown and white bread, respectively. The real FTRPS for brown bread reached R23 251.80/ton of flour in January 2017 and in the case of white bread, R23 571.44/ton of flour. From January 2016 to January 2017, **year-on-year**, real FTRPS increased by 8.29 % for brown bread and by 6.44 % for white bread. During the same period, real farm value share decreased by 9.90 % and 8.55 %, 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 November 2016 to January 2017.

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-retail-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 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 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 (IES) of 2014/15 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 the Stats SA website: <http://www.Stats SA.gov.za/>

## 4. Methodology and Definition

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 South African Foreign Exchange (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 margins, 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 and 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 produces 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.

**The producer price** of wheat is therefore 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 the 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 2 198 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 this 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.

- 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 the 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 (%)
<b>Super</b>	62.5
<b>Special</b>	78.7
<b>Sifted</b>	88.7
<b>Un-sifted</b>	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: 42.24kg 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 5.43kg, T-bone 8.00kg, Topside and Silverside Mince 18.39kg, chuck 23.09kg and brisket 16.59kg. Stats SA now included a 6<sup>th</sup> price, offal, which will now be included in calculating the spread.

**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 220kg carcass weight, +/- 85.57 kg is 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/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 six (6) 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 2.05 %, from November 2016 to January 2017. During the same period, the real farm value share of fresh whole chicken increased by 0.52 %. The real farm value share of fresh whole chicken reached 57.82 % in January 2017. From January 2016 to January 2017, **year-on-year**, real FTRPS decreased by 10.63 %, while the real farm value share increased by 8.87 %.

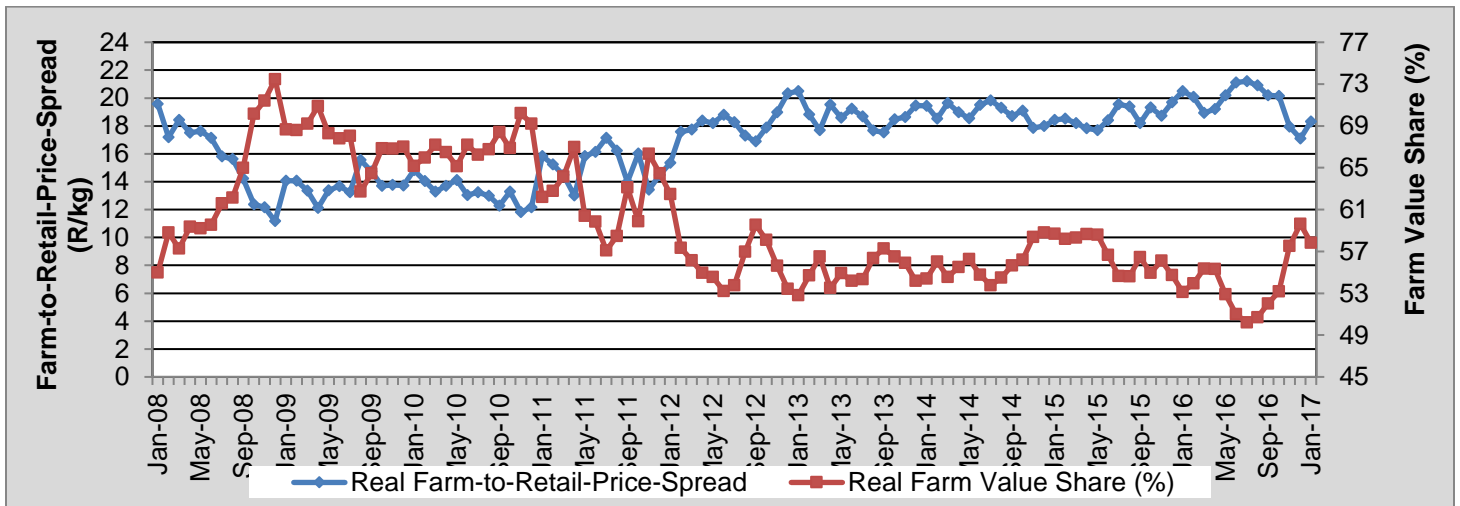


Figure 1: Real farm-to-retail-price-spread and farm value share of poultry

Source: Stats SA, 2017; AMT, 2017 and own calculations

- Beef:** The real FTRPS of class A2/A3 beef increased by 3.25 % from November 2016 to January 2017 and reached R46.88 in January 2017. The real farm value share of beef decreased by 0.55 % from November 2016 to January 2017 and reached 45.05 % in January 2017. From January 2016 to January 2017, **year-on-year**, real FTRPS decreased by 1.12 %, while real farm value share increased by 0.29 %.

<sup>1</sup> Please note that the FTRPS of Beef will change as an additional cut, *offal*, is monitored by Stats SA from January 2017 onwards. Offal will therefore be included in the calculation of the spread.



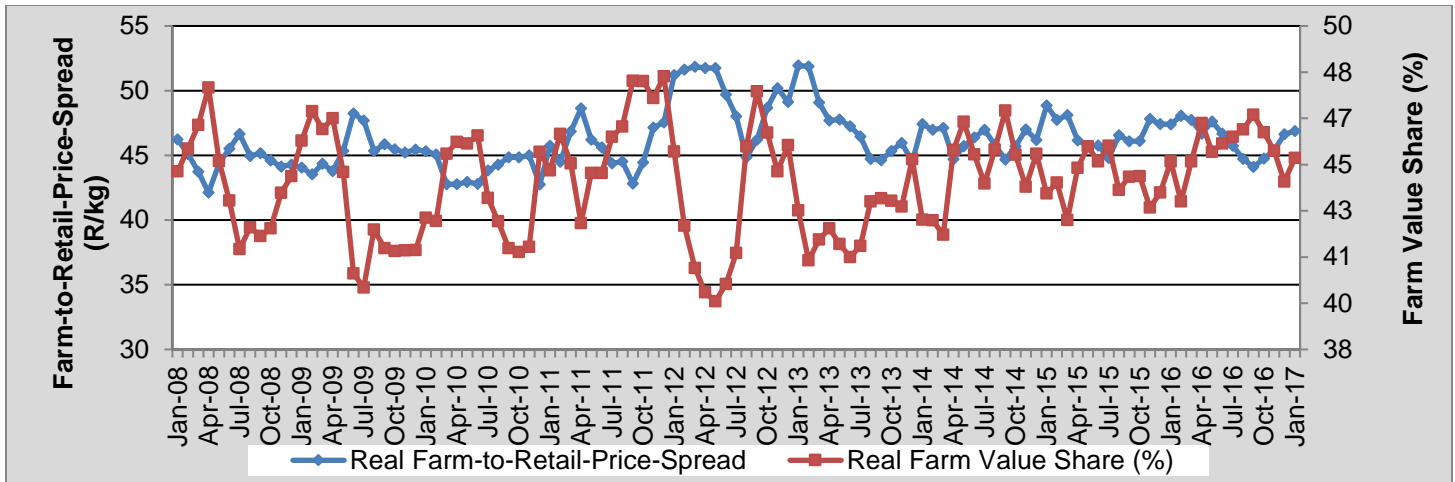


Figure 2: Real farm-to-retail-price-spread and farm value share for beef

Source: Stats SA, 2017 AMT, 2017 and own calculations

- Lamb<sup>2</sup>: The real FTRPS of class A2/A3 lamb increased by 149.05 % from November 2016 to January 2017 and reached R9.36/kg in January 2017. The real farm value share decreased by 6.81 %, on average, from November 2016 to January 2017 and reached 87.82 % in January 2017. From January 2016 to January 2017, **year-on-year**, real FTRPS increased by 59.86 %, while the real farm value share decreased by 3.56 %.

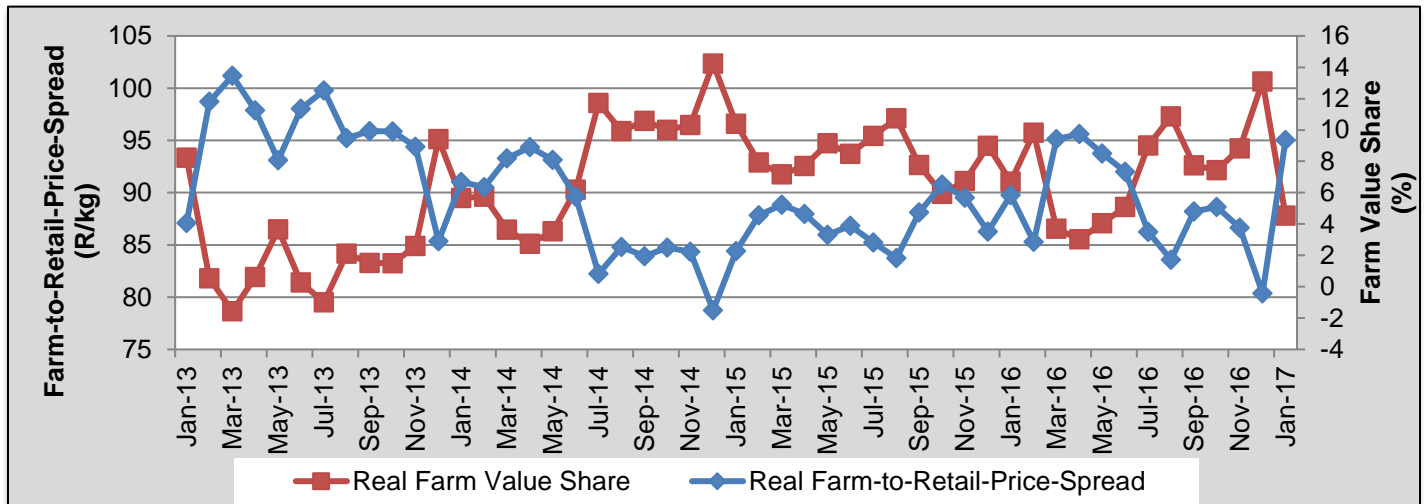
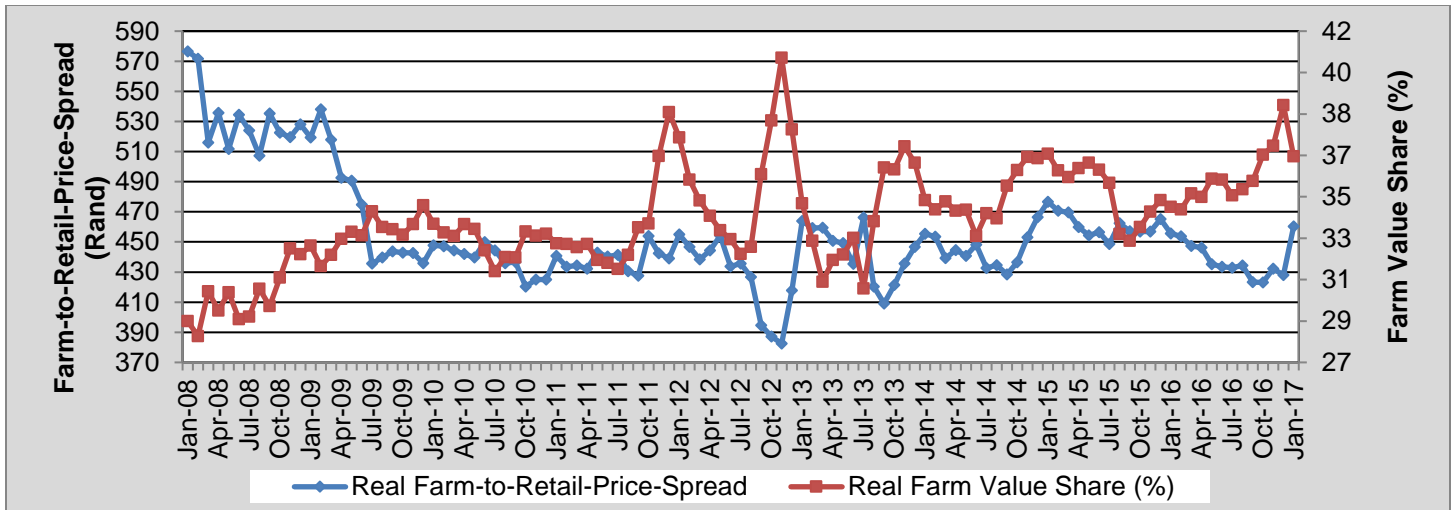


Figure 3: Real farm-to-retail-price-spreads and farm value share of lamb

Source: Stats SA, 2017; AMT, 2017 and own calculations

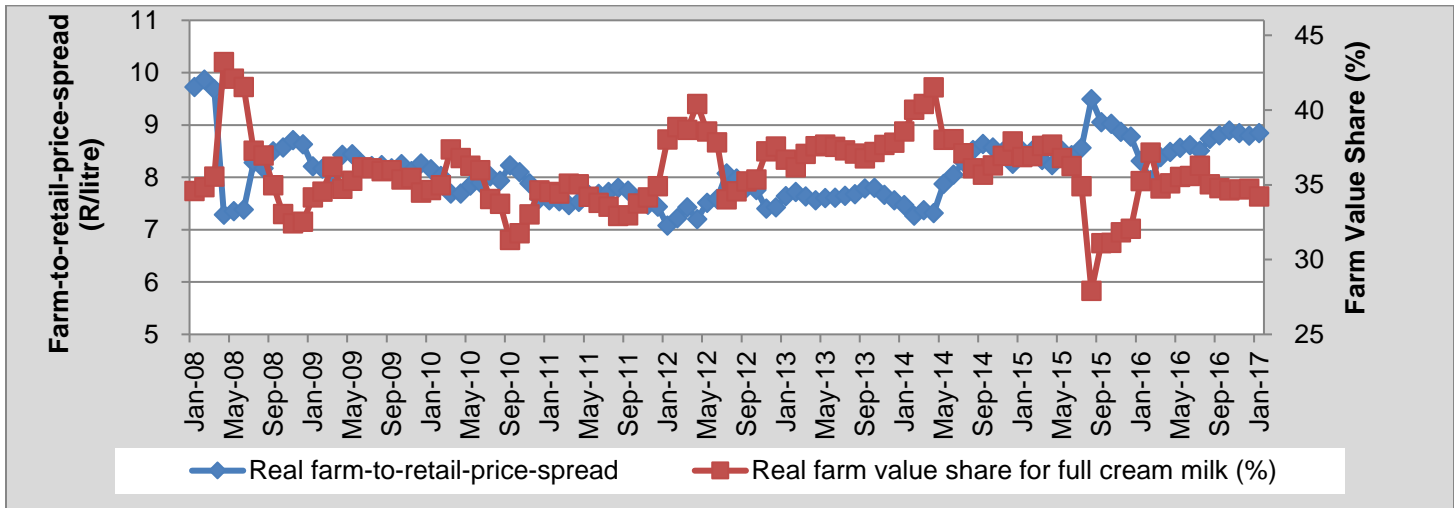
- Pork: The real FTRPS of pork increased from R432.15 in November 2016 to R 460.30 in January 2017 (6.51 %). The real farm value share decreased by 1.33 %, on average, from November 2016 to January 2017 and reached 36.46 % in January 2017. From January 2016 to January 2017, **year-on-year**, real FTRPS and real farm value share increased by 1.02 % and 6.80 %, respectively.

<sup>2</sup> Please note that the FTRPS of Lamb will change as an extra cut, *offal*, is now monitored by Stats SA from January 2017 onwards, but the cut utilised historically, *Saddle Chops*, has now been excluded from the new 2016 basket. *Offal* will therefore be included in the new calculation of the spread, whilst *Saddle Chops* will be removed. In order to make any comparison with previous years', *Saddle Chops* will be removed in the historic time series data as well.



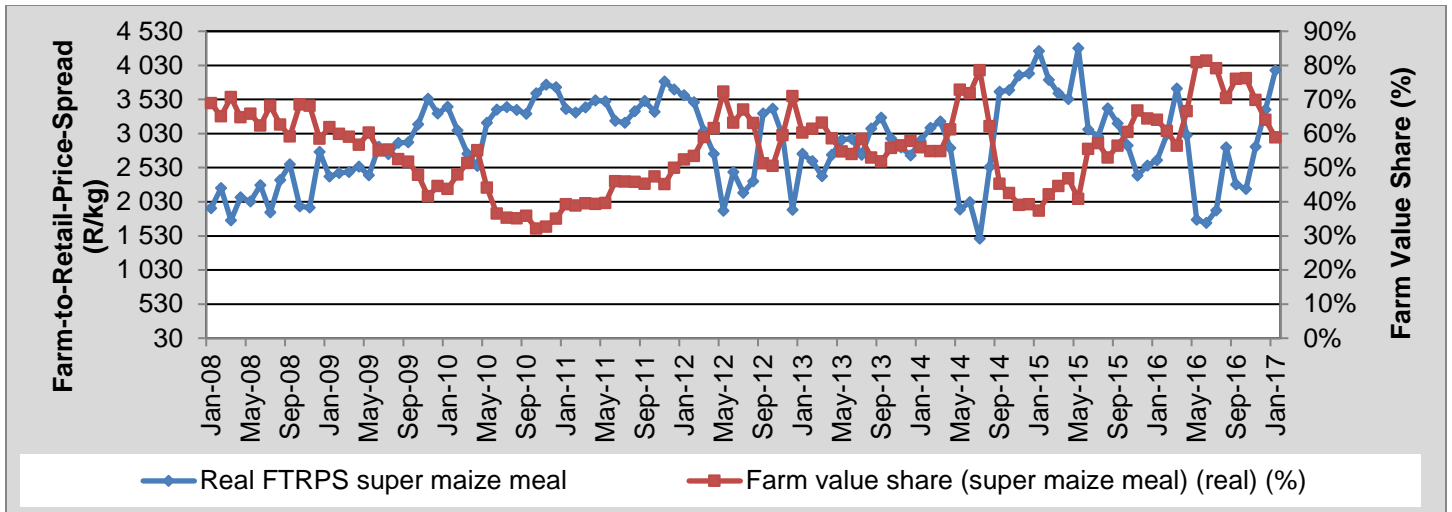
**Figure 4: Real farm-to-retail-price-spread and farm value share of pork**  
 Source: Stats SA, 2017; AMT, 2017 and own calculations

- Milk: The real FTRPS for full cream milk increased from R8.84/ℓ to R8.85/ℓ (0.02 %), from November 2016 to January 2017. The real farm value share decreased, on average, by 1.36 %, from November 2016 to January 2017. From January 2016 to January 2017, **year-on-year**, the real FTRPS increased by 6.42 % while the real farm value share decreased by 2.86 %.



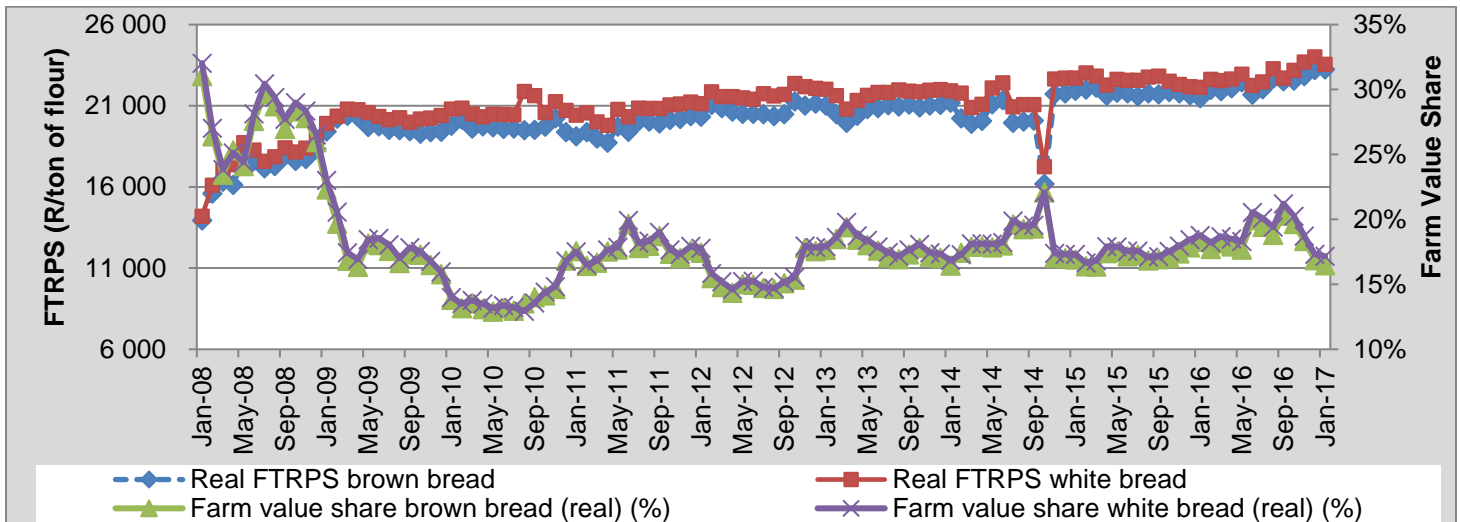
**Figure 5: Real farm-to-retail-price-spread and farm value share of milk**  
 Source: Stats SA, 2017; AMT, 2017 and own calculations

- Maize: The real FTRPS of super maize meal (5kg) increased from R2 836.11/ton in November 2016 to R3 957.05/ton in January 2017 (39.52 %). The real farm value share of super maize meal (5kg) was 69.80 % in November 2016 and decreased to reach 58.86 % in January 2017 (-15.68 %). From January 2016 to January 2017, **year-on-year**, the real FTRPS increased by 49.81 %, while the real farm value share decreased by 8.07 %.



**Figure 6: Real farm-to-retail-price-spread and farm value share of super maize meal 5kg**  
 Source: Stats SA, 2017; AMT, 2017 and own calculations

- Wheat:** In January 2017, the real farm value shares reached 16.48 % and 17.18 %, for brown and white bread, respectively. The real FTRPS for brown bread reached R23 251.80/ton of flour in January 2017 and in the case of white bread, R23 571.44/ton of flour. From January 2016 to January 2017, **year-on-year**, real FTRPS increased by 8.29 % for brown bread and by 6.44 % for white bread. During the same period, real farm value share decreased by 9.90 % and 8.55 %, for brown and white bread, respectively.



**Figure 7: Real farm-to-retail-price-spread and farm value share of wheat**  
 Source: Stats SA, 2017; AMT, 2017 and own calculations

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

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