National Agricultural Marketing Council

Promoting market access for South African agriculture

Markets and Economic Research Centre

Farm-to-Retail-Price-Spread

Quarter 3: August - October 2018

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FARM-TO-RETAIL-PRICE-SPREAD

November 2018

The basket of food products included in this publication is derived from the Income and Expenditure Survey (IES) of 2014/15', compiled by Statistics South Africa (Stats SA). This food basket is to be representative of consumer spending on food and, as a result of the IES 2014/15 release and the CPI base year (2016=100) adjustment, the food basket had since been altered. Cognisance of the above background should be taken when 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:*** In the third quarter of 2018 (August - October 2018), the real FTRPS of fresh whole chicken increased on average by 2.31%. During the same period, the real farm value share of fresh whole chicken decreased by 0.2%. The real farm value share of fresh whole chicken reached 55.58% in October 2018. From October 2017 to October 2018, year-on-year, real FTRPS increased by 14.97%, while the real farm value share decreased by 8.37%.
- ***Beef:*** The real FTRPS of class A2/A3 beef decreased by 1.13% during the third quarter of 2018 (August - October 2018) and reached R37.78/kg in October 2018. The real farm value share of beef decreased by 0.36% in this quarter and reached 52.62% in October 2018. From October 2017 to October 2018, year-on-year, real FTRPS increased by 1.93%, while the real farm value share decreased by 2.92%.
- ***Lamb:*** The real FTRPS of class A2/A3 lamb increased by 0.46% and reached R62.96/kg in October 2018. The real farm value share decreased by 0.94%, on average, from August to October 2018 and reached 51.74% in October 2018. From October 2017 to October 2018, year-on-year, real FTRPS increased by 8.53%, while the real farm value share decreased by 5.93%.
- ***Pork:*** The real FTRPS of pork decreased from R45.92/kg in August 2018 to R45.10/kg in October 2018 (-1.8%). The real farm value share increased by 7.61%, on average, and reached 35.25% in October 2018. From October 2017 to October 2018, year-on-year, the real farm value share and real FTRPS decreased by 7.03% and 4.94%, respectively.
- ***Milk:*** The real FTRPS for full cream milk increased from R9.53/ℓ to R9.58/ℓ (0.53%), during the third quarter (August - October) of 2018. The real farm value share decreased, on average, by 0.7%, during the third quarter of 2018. From October 2017 to October 2018, year-on-year, the real FTRPS increased by 11.99% while the real farm value share decreased by 23.2%.
- ***Maize:*** The real FTRPS of super maize meal (converted to a price per ton) increased from R3 265.68/ton in August 2018 to R3 338.30/ton in October 2018 (2.22%). The real farm value share of super maize meal (5kg) was 42.54% in August 2018 and slightly increased to reach 43.24% in

October 2018 (1.66%). From October 2017 to October 2018, year-on-year, the real FTRPS decreased by 30.93%, while the real farm value share increased by 39.94%.

- ***Wheat:*** In October 2018, the real farm value shares reached 16.05% and 16.21%, for brown and white bread, respectively. The real FTRPS for brown bread reached R20 408.65/ton of flour in October 2018 with white bread reaching R21 485.79/ton of flour. From October 2017 to October 2018, year-on-year, real FTRPS decreased by 5% for brown bread and by 0.6% for white bread. During the same period, real farm value share decreased by 10.56% and 13.79%, for brown and white bread, respectively.

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 (also 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 third quarter (August - October 2018).

NAMC compares prices paid by consumers for food with prices received by farmers for corresponding commodities, analyses this data set, and 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 prices 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.

FTRPS 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 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. 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 formulas behind this data series consists of four parts (Food Price Monitoring Committee report, 2003):

- **The farm value** is the value of the farm product's equivalent in the final food product purchased by the consumers.
- **The 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)** = the retail value – the farm value.
- **The farm value share** = the farm value divided by the retail value.

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

The different prices in the four main levels in the value chain are: the average producer price that the farmer receives as reported by South African Future 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 utilised. 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 four-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. The extraction rate from 1 ton of wheat is 0.87 tons of brown bread flour and 0.8 tons of white bread flour. Assuming that 447 grams of flour per standard 700g loaf is used, 2 095 brown loaves can be baked per ton of flour. Similarly, if 509 grams of flour per standard 700g loaf is used, 1 966 white loaves can be baked per ton of flour.

Farm value is calculated by dividing the farm gate price by the respective extraction rates namely, 0.8 for white bread and 0.87 for brown bread respectively.

Retail value is calculated by multiplying the price of white and brown bread by the number **o**f loaves that 1 ton of flour produces, i.e. 2 095 for brown bread and 1 996 for white bread, respectively.

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

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

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

The prices of the four main nodes in the maize 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 utilised 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. The transport differential has changed since roads have become a major participant to be included into the calculation of the differential. The adjustment based on ratio/percentage of rails and roads have been used to calculate the location differentials. 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 to the silos than the farmers.
- There is an approximate four-month time lag between the average monthly SAFEX spot price and the average monthly retail price.
- Specific mill site costs are only available on an annual basis. Therefore, the monthly mill site costs are kept constant for a one-year cycle.

Table 1 below provides a summary of the extraction rates of the various types of maize meal, as sourced from the National Chamber of Milling (NCM). It is essential to make a distinction between the various types of maize meal due to their different extraction rates, which influence the margins and spread of the millers significantly. More than 40% of all the maize meal sold in the South African market is super maize meal, and this percentage is increasing. Special maize meal sales contribute 30% of total maize meal sales. Although an extraction rate of 62.5% is reported for super maize meal, some industry specialists regard this value 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%
Un-sifted	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 one ton of super maize meal can be produced from 1.6 tons of raw white maize.

The retail value for one-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 5kg bag of maize meal (R20/bag) is calculated 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 minus 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 divided by retail value.

c) Beef margins

The first assumption relates to the average slaughtering weight of one head of cattle, which is equivalent to 220kg. Of the 220kg: 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 the allocation of certain weights to different meat cuts out from a 220kg carcass. Rump steaks are allocated a weight of 2.47%, T-bone 3.64%; mince 11.36%, stew 31.82%, chuck 18.02%, sirloin 2.15%, fillet 1.15% and brisket 7.54%. Stats SA included additional cut prices from January 2017, including stew and offal, of which stew will be included in calculating the spread between farm and retail levels.

The farm value of beef is therefore calculated by firstly determining the average weight of the specific cut in question. This would mean that from a 220kg carcass weight, +/-78.2% is made up by cuts specified above. To calculate the farm value, the weight of the cut is multiplied by the weighted average monthly slaughter price of A2/A3 quality beef (per kg). **The retail value** of a selected cut is then calculated by multiplying its price (R/kg) by its weight. The total retail value of these eight cuts combined is then obtained by summing up the specific retail values.

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

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

d) Lamb margins

The average slaughtering weight of a lamb carcass is equivalent to 20kg. Parts include off-cuts, fat, kidneys and bones, which do not form part of any direct food related items. The second assumption relates to the allocation of certain weights to the different meat cuts from a 20kg carcass. These include: leg 25.6%, loin and saddle chops 29.9%, neck 3.4%, rib chops 9.5% and stew 18.2%.

The farm value of lamb is therefore calculated by firstly determining the average weight of the specific cut in question. To calculate the farm value, the weight of the cut is multiplied by the weighted average monthly slaughter price of A2/A3 quality lamb (per kg). **The retail value** of a selected cut is then calculated by multiplying its price (R/kg) by its weight. The total retail value of these five cuts combined is then obtained by summing up the specific retail values.

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

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

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

- ***Poultry:*** In the third quarter of 2018 (August - October 2018), the real FTRPS of fresh whole chicken increased on average by 2.31%. During the same period, the real farm value share of fresh whole chicken decreased by 0.2%. The real farm value share of fresh whole chicken reached 55.58% in October 2018. From October 2017 to October 2018, year-on-year, real FTRPS increased by 14.97%, while the real farm value share decreased by 8.37% (See Figure 1 below).

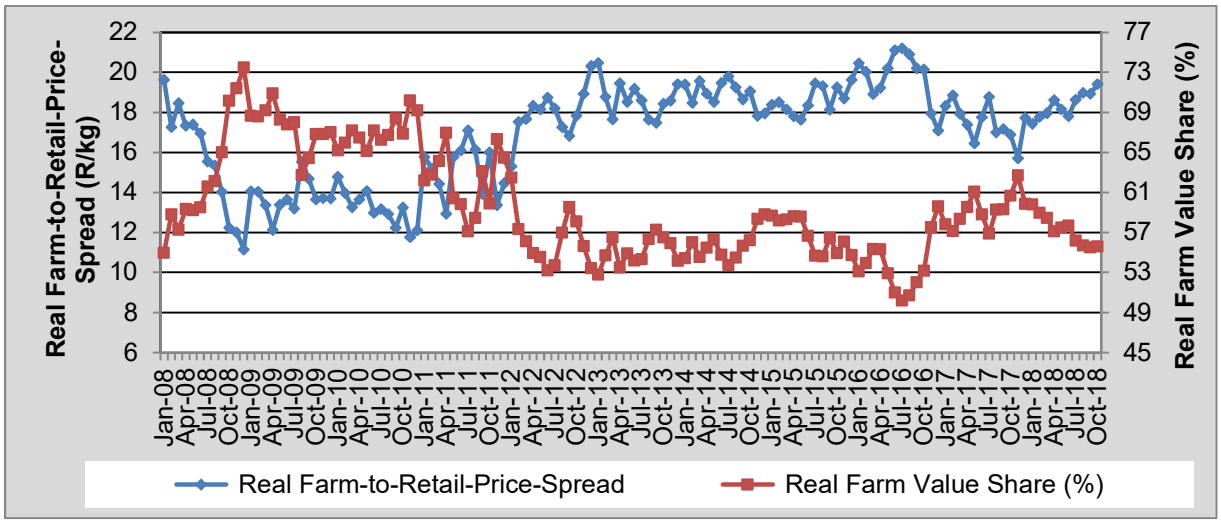

Figure 1: Real farm-to-retail-price-spread and farm value share of poultry
Source: Stats SA, 2018; AMT, 2018 and own calculations

- ***Beef:*** *Due to the inclusion of additional products in the new CPI basket (beef stew and offal) from January 2017, annual comparisons are possible for beef retail prices. The FTRPS of Beef will therefore include additional cuts, i.e. sirloin, stew and fillet, in the calculation of the spread from January 2017 onwards, but will exclude beef offal in the calculation of the spread.*

  The real FTRPS of class A2/A3 beef decreased by 1.13% during the third quarter of 2018 (August - October 2018) and reached R37.78.kg in October 2018. The real farm value share of beef decreased by 0.36% in this quarter and reached 52.62% in October 2018. From October 2017 to October 2018, year-on-year, real FTRPS increased by 1.93%, while the real farm value share decreased by 2.92% (See Figure 2 below).

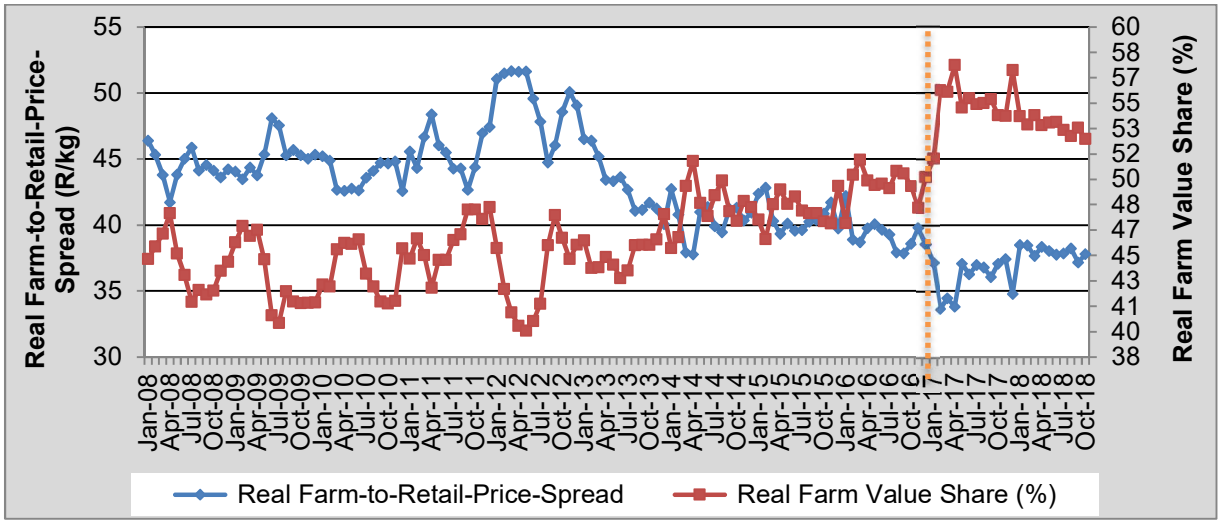

Figure 2: Real farm-to-retail-price-spread and farm value share for beef
Source: Stats SA, 2018 AMT, 2018 and own calculations

- ***Lamb:*** *Due to the inclusion of additional products in the new CPI basket (lamb stew and offal) from January 2017, annual comparisons are possible for lamb retail prices. The new FTRPS of Lamb will therefore include leg, loin chops (saddle chops), neck, rib chops and stew, but will exclude lamb offal in the calculation of the spread.*

  The real FTRPS of class A2/A3 lamb increased by 0.46% and reached R62.96/kg in October 2018. The real farm value share decreased by 0.94%, on average, from August to October 2018 and reached 51.74% in October 2018. From October 2017 to October 2018, year-on-year, real FTRPS increased by 8.53%, while the real farm value share decreased by 5.93% (See Figure 3 below).

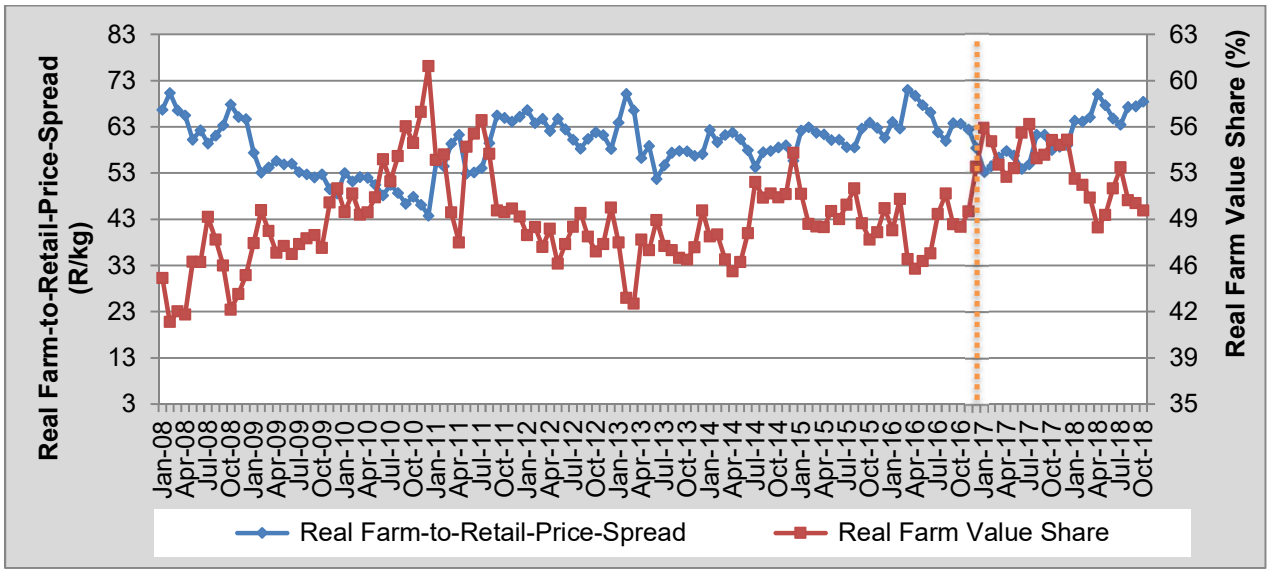

Figure 3: Real farm-to-retail-price-spread and farm value share of lamb
Source: Stats SA, 2018; AMT, 2018 and own calculations

- ***Pork:*** *Due to the inclusion of additional of products in the new CPI basket (pork ribs) from January 2013, annual comparisons can now be made for pork retail prices. The new FTRPS of pork will therefore include the pork ribs effective January 2013.*

  The real FTRPS of pork decreased from R45.92/kg in August 2018 to R45.10/kg in October 2018 (-1.8%). The real farm value share increased by 7.61%, on average, and reached 35.25% in October 2018. From October 2017 to October 2018, year-on-year, the real farm value share and real FTRPS decreased by 7.03% and 4.94%, respectively (See Figure 4 below).

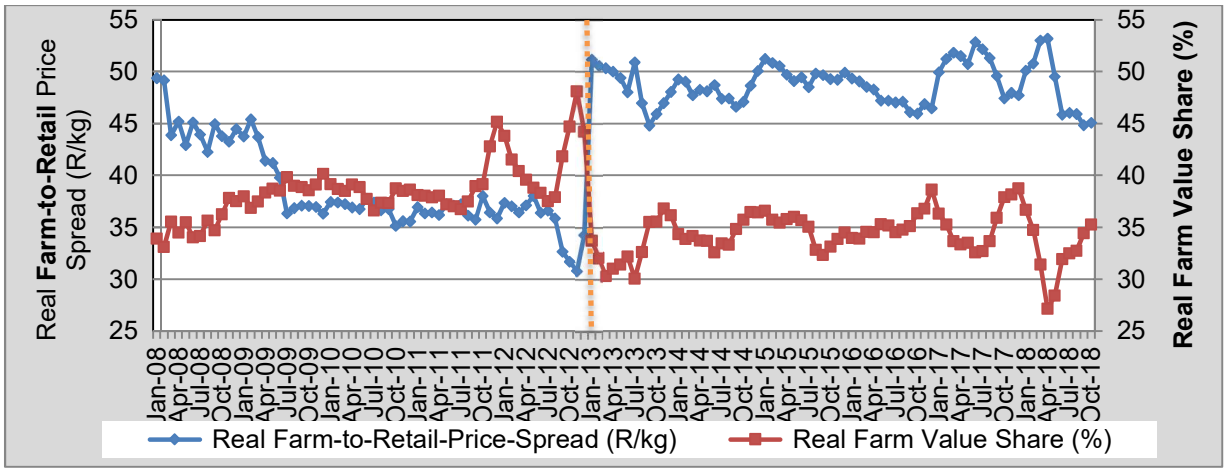

Figure 4: Real farm-to-retail-price-spread and farm value share of pork
Source: Stats SA, 2018; AMT, 2018 and own calculations

- ***Milk:*** The real FTRPS for full cream milk increased from R9.53/ℓ to R9.58/ℓ (0.53%), during the third quarter (August - October) of 2018. The real farm value share decreased, on average, by 0.7%, during the third quarter of 2018. From October 2017 to October 2018, year-on-year, the real FTRPS increased by 11.99% while the real farm value share decreased by 23.2% (See Figure 5 below).

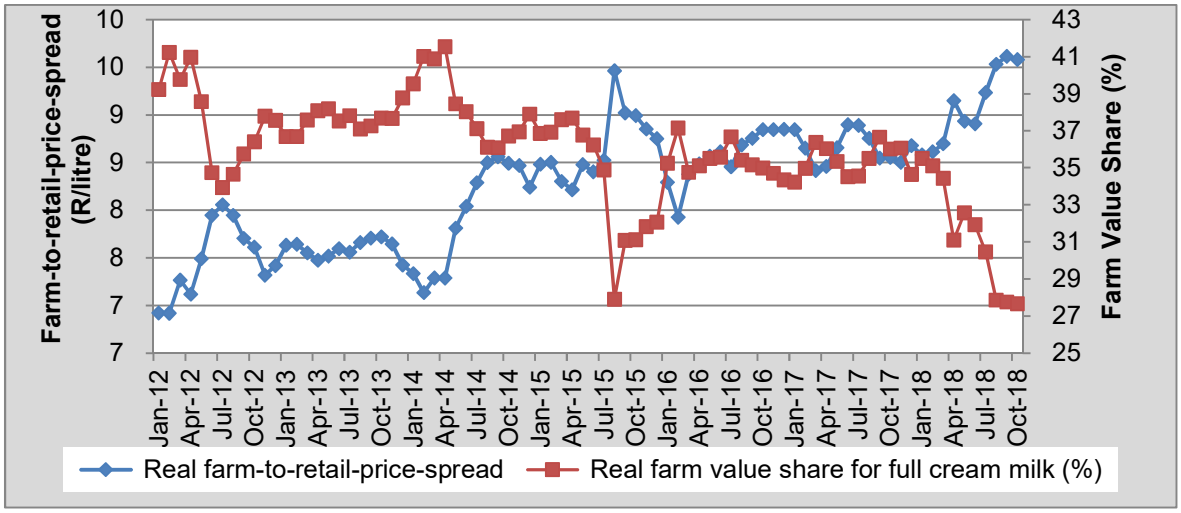

Figure 5: Real farm-to-retail-price-spread and farm value share of milk
Source: Stats SA, 2018; AMT, 2018 and own calculations

- ***Maize:*** *Due to data limitations for the monitoring of an average retail price for special maize meal (5kg) by Stats SA for the period February 2015 to December 2016, this section will only include the spread for super maize meal (5kg).*

  The real FTRPS of super maize meal (converted to a price per ton) increased from R3 265.68/ton in August 2018 to R3 338.30/ton in October 2018 (2.22%). The real farm value share of super maize meal (5kg) was 42.54% in August 2018 and slightly increased to reach 43.24% in October 2018 (1.66%). From October 2017 to October 2018, year-on-year, the real FTRPS decreased by 30.93%, while the real farm value share increased by 39.94% (See Figure 6 below).

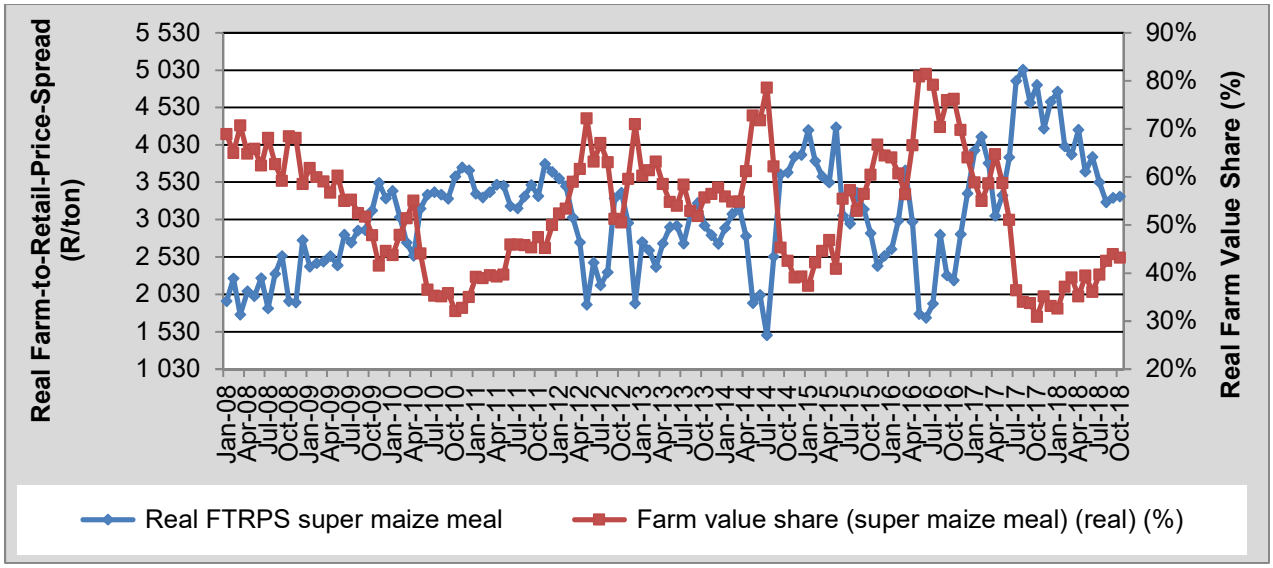

Figure 6: Real farm-to-retail-price-spread and farm value share of super maize meal 5kg
Source: Stats SA, 2018; AMT, 2018 and own calculations

- ***Wheat:*** In October 2018, the real farm value shares reached 16.05% and 16.21%, for brown and white bread, respectively. The real FTRPS for brown bread reached R20 408.65/ton of flour in October 2018 with white bread reaching R21 485.79/ton of flour. From October 2017 to October 2018, year-on-year, real FTRPS decreased by 5.0% for brown bread and by 0.6% for white bread. During the same period, real farm value share decreased by 10.56% and 13.79%, for brown and white bread, respectively (See Figure 7 below).

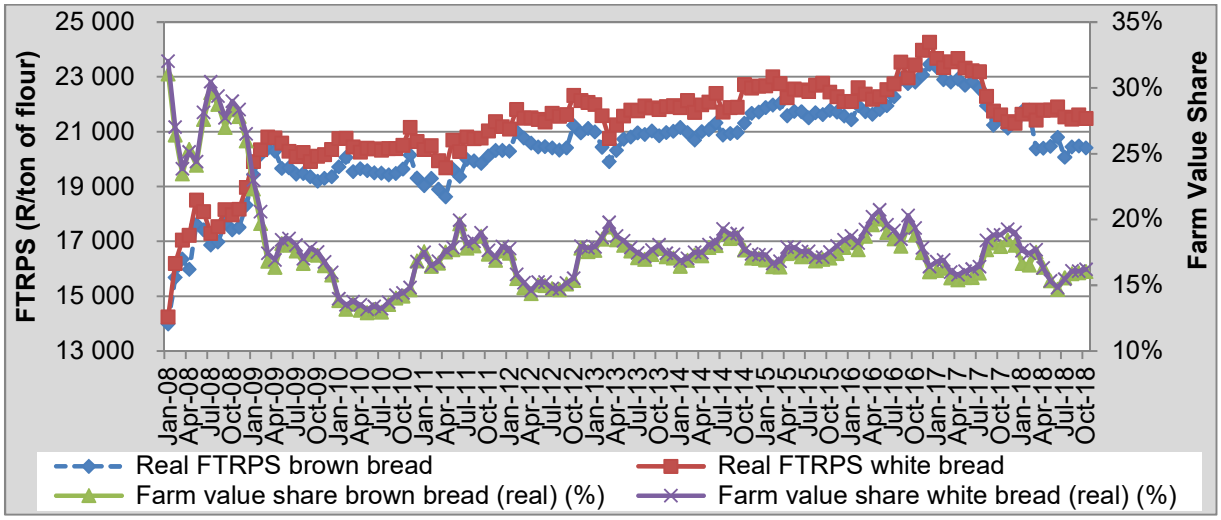

Figure 7: Real farm-to-retail-price-spread and farm value share of wheat
Source: Stats SA, 2018; AMT, 2018 and own calculations

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