



National Agricultural
Marketing Council
Promoting market access for South African agriculture

Markets and Economic Research Centre



Farm-to-Retail-Price-Spreads

Issue: Feb/2018



FARM-TO-RETAIL-PRICE-SPREADS

February 2018

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 and the CPI base year (2016=100) adjustment, the food basket had to be altered.

Stats SA introduced additional products from January 2017, and excluded some of the pre-January 2017 products. The food basket had been adjusted by including the additional observations/products. As a result, annual comparisons will now be possible. Cognisance of the above background should therefore 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:** The real FTRPS of fresh whole chicken increased on average by 11.01%, from November 2017 to January 2018. During the same period, the real farm value share of fresh whole chicken decreased by 4.64%. The real farm value share of fresh whole chicken reached 59.8% in January 2018. From January 2017 to January 2018, year-on-year (y-o-y), real FTRPS decreased by 4.87%, while the real farm value share increased by 3.43%.
- **Beef:** The real FTRPS of class A2/A3 beef increased by 2% from November 2017 to January 2018 and reached R38.18 in January 2018. The real farm value share of beef increased by 0.66% from November 2017 to January 2018 and reached 54.5% in January 2018. From January 2017 to January 2018, **year-on-year**, real FTRPS increased by 2.7%, while the real farm value share increased by 6.22%.
- **Lamb:** The real FTRPS of class A2/A3 lamb increased by 8.4% from November 2017 to January 2018 and reached R63.64/kg in January 2018. The real farm value share decreased by 3.71%, on average, from November 2017 to January 2018 and reached 52.59% in January 2018. From January 2017 to January 2018, (y-o-y), real FTRPS increased by 19.63%, while the real farm value share decreased by 5.94%.
- **Pork:** The real FTRPS of pork increased from R444.22 in November 2017 to R462.73 in January 2018 (4.17%). The real farm value share decreased by 3.37%, on average, from November 2017 to January 2018 and reached 36.92% in January 2018. From January 2017 to January 2018, (y-o-y), real FTRPS increased by 0.53%, while the real farm value share increased by 1.28%.
- **Milk:** The real FTRPS for full cream milk increased from R8.50/l to R8.58/l (0.91%), from November 2017 to January 2018. The real farm value share decreased, on average, by 1.57%, from November 2017 to January 2018. From January 2017 to January 2018, (y-o-y), the real FTRPS decreased by 3% while the real farm value share increased by 3.74%.
- **Maize:** Due to the data limitation 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 (5kg) increased from R4 247.25/ton in November 2017 to R4 743.15/ton in January 2018 (11.68%). The real farm value share of super maize meal (5kg) was 35.15% in November 2017 and decreased to reach 32.57% in January 2018 (-7.32%). From January 2017 to January 2018, (y-o-y), the real FTRPS increased by 19.87%, while the real farm value share decreased by 44.66%.

- **Wheat:** In January 2018, the real farm value shares reached 16.67% and 17.64%, for brown and white bread, respectively. The real FTRPS for brown bread reached R21 738.40/ton of flour in January 2018 and in the case of white bread, R21 636.33/ton of flour. From January 2017 to January 2018, (y-o-y), real FTRPS decreased by 6.91% for brown bread and by 8.62% for white bread. During the same period, real farm value share increased by 3.43% and 5 %, for brown and white bread, respectively.

Table of Contents

1. Introduction and Overview	1
2. Background.....	1
3. Data Collection	1
4. Methodology and Definition	2
a) Wheat-to-bread margins (white and brown).....	2
b) Maize-to-maize-meal margins (super and special).....	3
c) Beef margins.....	4
d) Lamb margins	4
5. 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. The purpose of this publication is to reflect on food price spreads during the months of November 2017 to January 2018.

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 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.StatsSA.gov.za/>.

4. Methodology and Definition

The methodology behind this data series consists of four parts, with relevant formulas (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) is the retail value less the farm value.
- The farm value share is the farm value divided by the retail value.

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

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 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. With the wheat-to-bread 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 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, thus, the extraction rate from 1 ton of wheat is 0.87 tons of brown bread flour and 0.80 tons of white bread flour. Assuming that 447 grams of flour per standard 700g loaf are 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, thus 0.80 for white bread and 0.87 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. 2 095 for brown bread and 1 996 for white bread, respectively.

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

The producer price of wheat is therefore calculated by taking the SAFEX price, subtracting the farmers' transport 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-to-maize meal 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 factor to be included into the calculation of the differential. The adjustment based on ratios/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 by the silos than the farmers are.
- There is an approximate four-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 basis. 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 (%)
Super	62.5
Special	78.7
Sifted	88.7
Un-sifted	98.7

The farm value for 1-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 5kg bag of maize meal (at 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 maize meal purchased in retail grocery stores. This is equal to farm value divided by retail value.

c) Beef margins

The first assumption is that the average slaughter weight of one head of cattle, is equal to 220kg. Of the 220kg: 42.24kg consist of parts including off-cuts, fat, kidneys and bones, which are excluded in the calculation of the spread. The second assumption relates to allocating certain weights to the different meat cuts out of 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.

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, +/-78.2% is made up by cuts specified above. To calculate the farm value, the weight of the cuts is multiplied by 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 eight 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 minus retail value).

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

d) Lamb margins

The average slaughter weight of a lamb is equivalent to 20kg. Parts including off-cuts, fat, kidneys and bones, are excluded from the calculation of the spread. The second assumption relates to allocating certain weights to the different meat cuts out of a 20kg carcass as follows: Leg 25.6%, loin and saddle chops 29.9%, neck 3.4%, rip chops 9.5% and stew 18.2%.

The farm value of lamb is thus calculated by firstly determining the average weight of the specific cuts in question. To calculate the farm value, the weight of the cuts is multiplied with the weighted average monthly slaughter price of A2/A3 quality lamb (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 five 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 minus retail value).

The farm value share is the proportion farmers get from the amount consumers spend lamb purchased in retail grocery stores. This is equal to farm value divided by retail value.

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

The farm value share (measured in percentage terms) is the share 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 11.01%, from November 2017 to January 2018. During the same period, the real farm value share of fresh whole chicken decreased by 4.64%. The real farm value share of fresh whole chicken reached 59.8% in January 2018. From January 2017 to January 2018, (y-o-y), real FTRPS decreased by 4.87%, while the real farm value share increased by 3.43%.

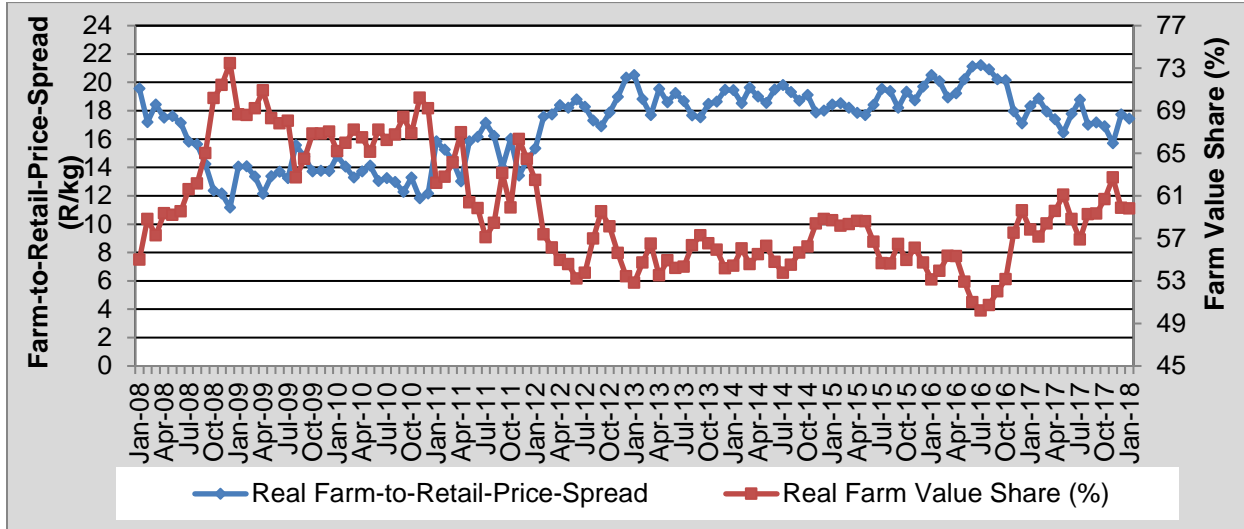


Figure 1: Real farm-to-retail-price-spread and farm value share of poultry

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 can now be made 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 increased by 2% from November 2017 to January 2018 and reached R38.18 in January 2018. The real farm value share of beef increased by 0.66% from November 2017 to January 2018 and reached 54.5% in January 2018. From January 2017 to January 2018, (y-o-y), real FTRPS increased by 2.7%, while the real farm value share increased by 6.22%.

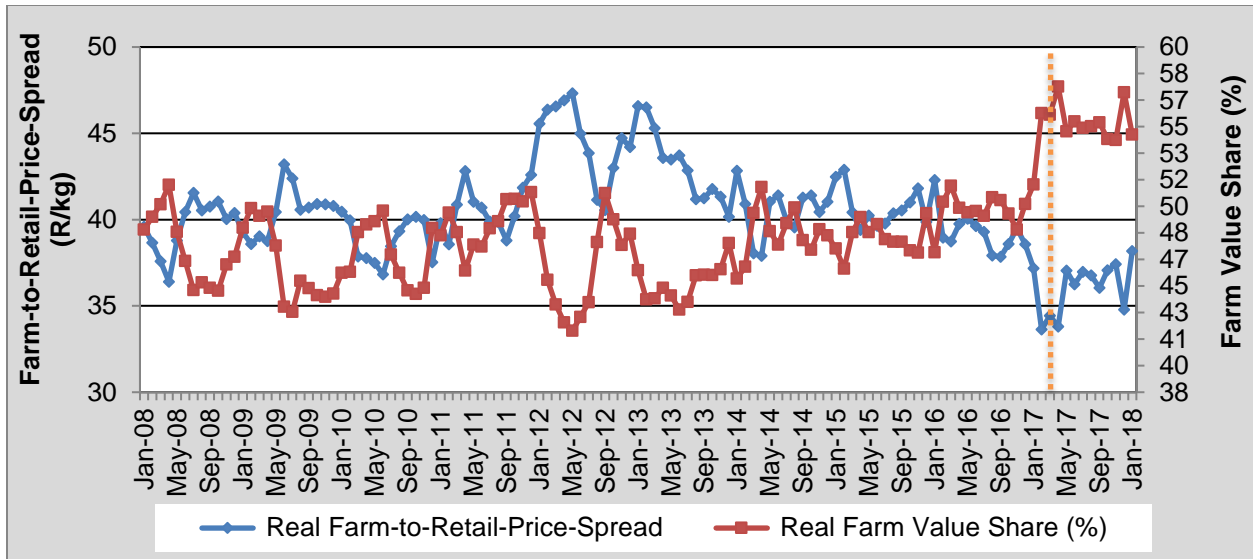


Figure 2: Real farm-to-retail-price-spread and farm value share for beef

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 can now be made for lamb retail prices. The new FTRPS of Lamb will therefore include leg, loin chops (saddle chops), neck, rip chops and stew, but will exclude lamb offal in the calculation of the spread.

The real FTRPS of class A2/A3 lamb increased by 8.4% from November 2017 to January 2018 and reached R63.64/kg in January 2018. The real farm value share decreased by 3.71%, on average, from November 2017 to January 2018 and reached 52.59% in January 2018. From January 2017 to January 2018, (y-o-y), real FTRPS increased by 19.63%, while the real farm value share decreased by 5.94%.

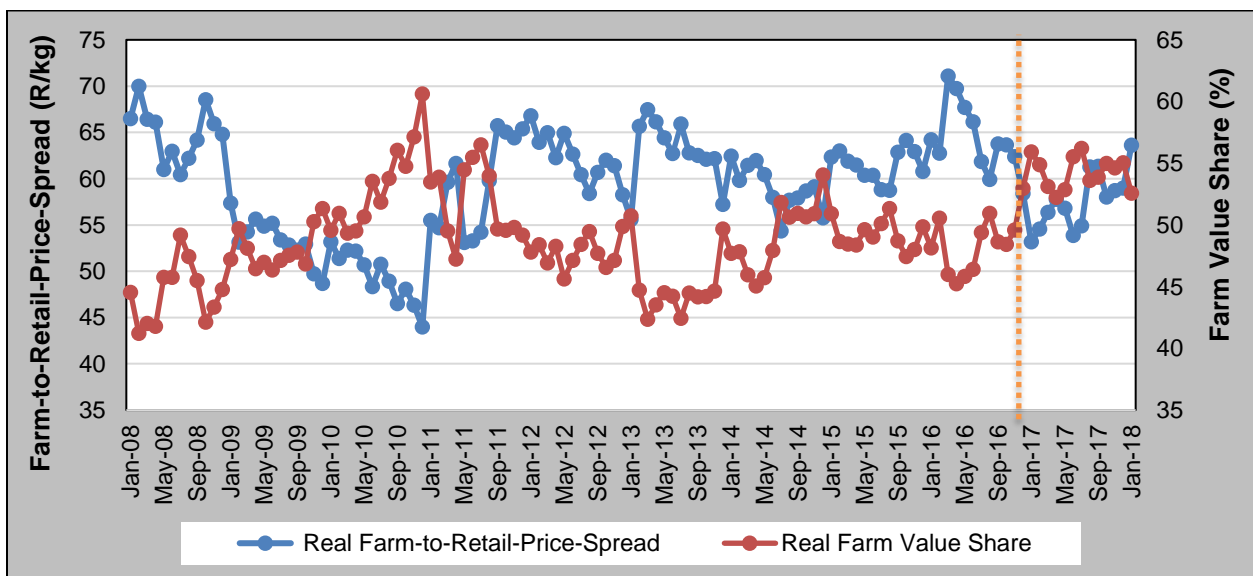


Figure 3: Real farm-to-retail-price-spread and farm value share of lamb

Source: Stats SA, 2018; AMT, 2018 and own calculations

- Pork:** The real FTRPS of pork increased from R444.22 in November 2017 to R462.73 in January 2018 (4.17%). The real farm value share decreased by 3.37%, on average, from November 2017 to January 2018 and reached 36.92% in January 2018. From January 2017 to January 2018, (y-o-y), real FTRPS increased by 0.53%, while the real farm value share increased by 1.28%.

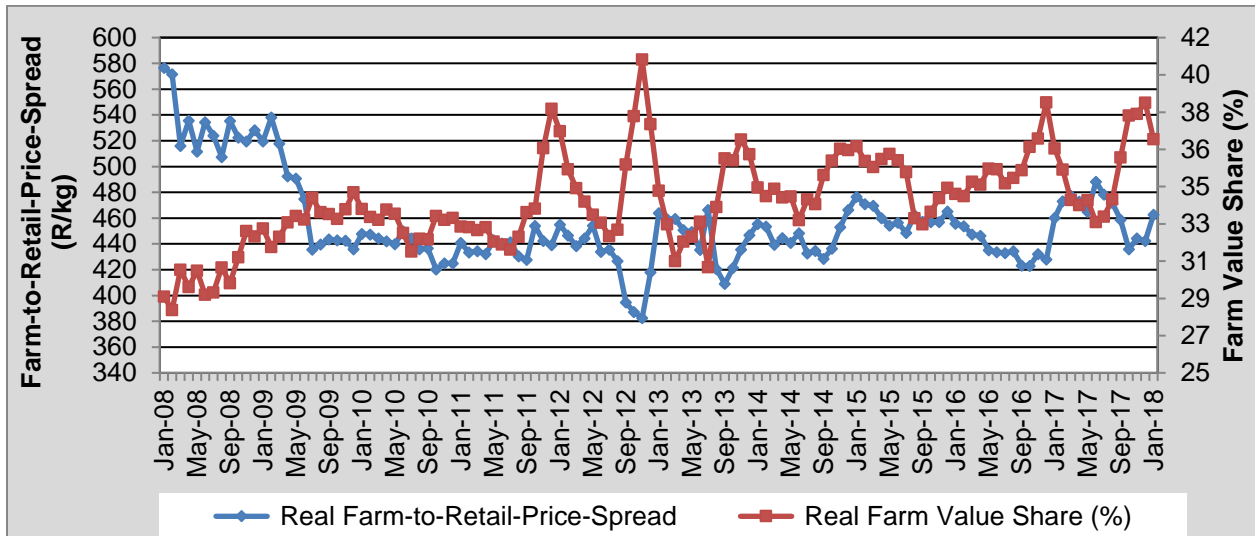


Figure 4: Real farm-to-retail-price-spread and farm value share of pork
 Source: Stats SA, 2018; AMT, 2018 and own calculations

- Milk:** The real FTRPS for full cream milk increased from R8.50/ℓ to R8.58/ℓ (0.91%), from November 2017 to January 2018. The real farm value share decreased, on average, by 1.57%, from November 2017 to January 2018. From January 2017 to January 2018, (y-o-y), the real FTRPS decreased by 3% while the real farm value share increased by 3.74%.

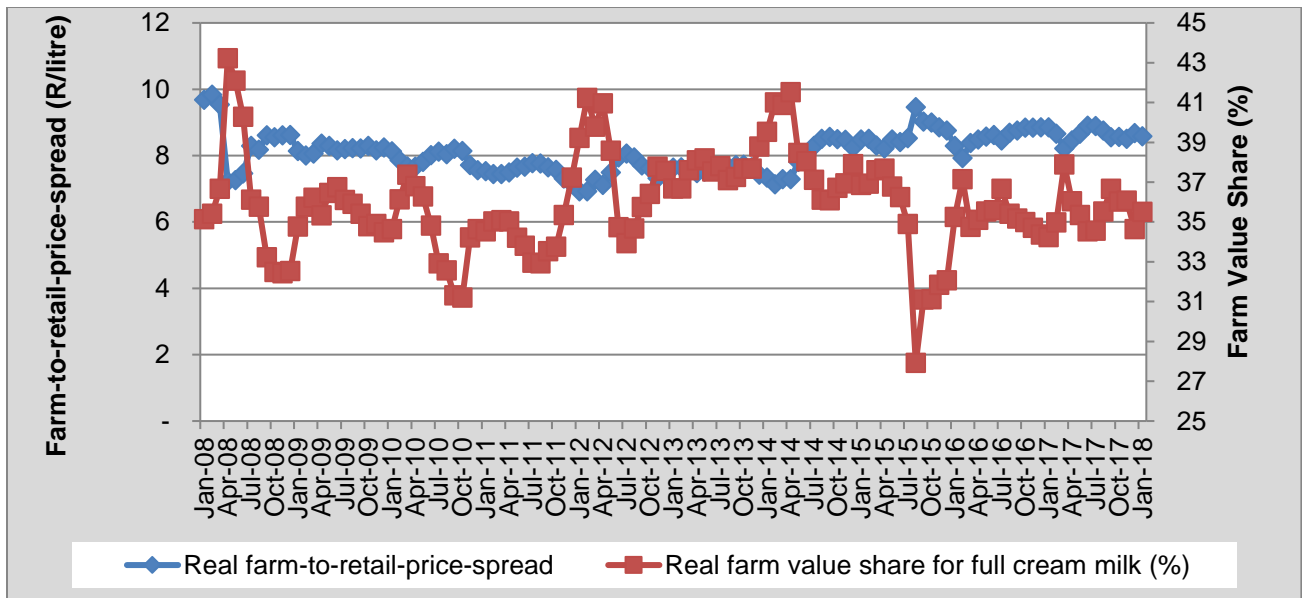


Figure 5: Real farm-to-retail-price-spread and farm value share of milk
 Source: Stats SA, 2018; AMT, 2018 and own calculations

- 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 (5kg) increased from R4 247.25/ton in November 2017 to R4 743.15/ton in January 2018 (11.68%). The real farm value share of super maize meal (5kg) was 35.15% in November 2017 and decreased to reach 32.57% in January 2018 (-7.32%). From January 2017 to January 2018, **year-on-year**, the real FTRPS increased by 19.87%, while the real farm value share decreased by 44.66%.

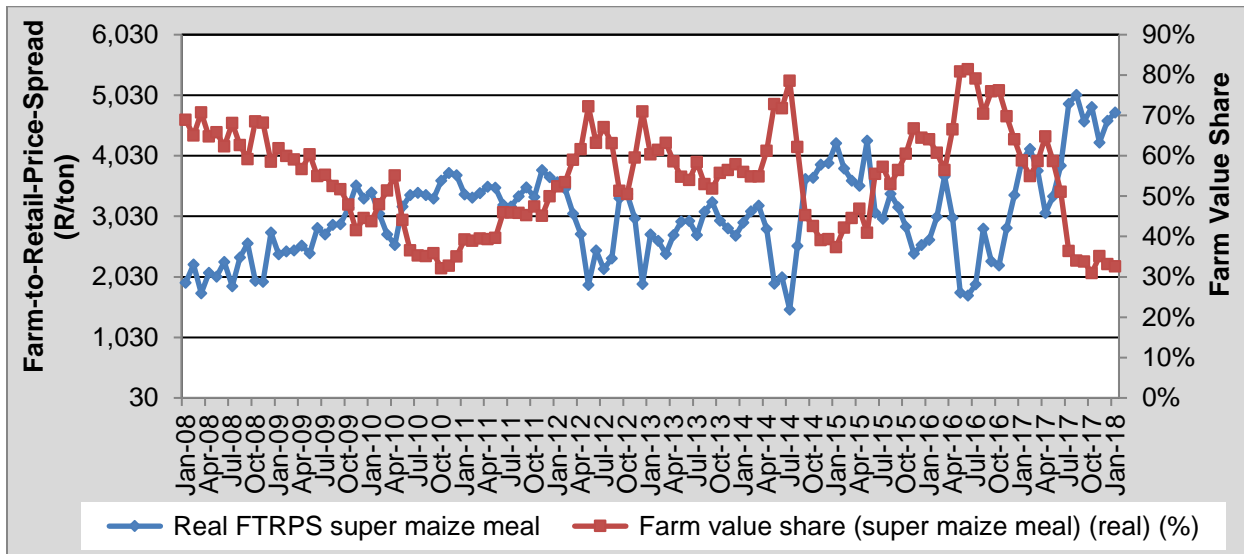


Figure 6: Real farm-to-retail-price-spread and farm value share of super maize meal 5kg
 Source: Stats SA, 2018; AMT, 2018 and own calculations

- Wheat:** In January 2018, the real farm value shares reached 16.67% and 17.64%, for brown and white bread, respectively. The real FTRPS for brown bread reached R21 738.40/ton of flour in January 2018 and in the case of white bread, R21 636.33/ton of flour. From January 2017 to January 2018, **year-on-year**, real FTRPS decreased by 6.91% for brown bread and by 8.62% for white bread. During the same period, real farm value share increased by 3.43% and 5%, for brown and white bread, respectively.

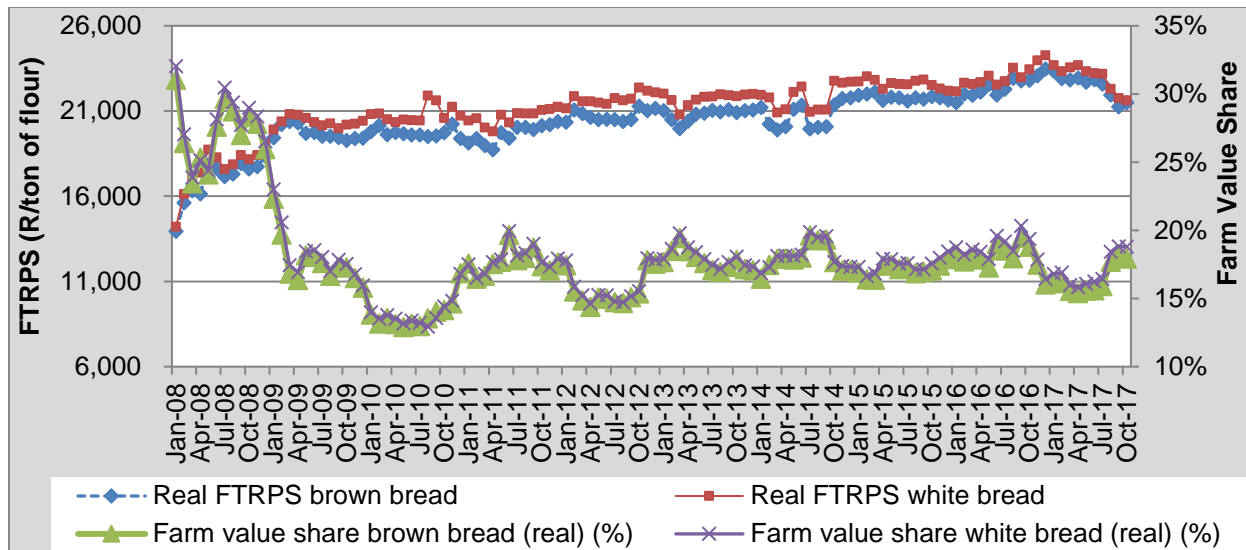


Figure 7: Real farm-to-retail-price-spread and farm value share of wheat

Source: Stats SA, 2018; AMT, 2018 and own calculations

Compiled by:

Price trends and discussion on selected topics:

Fezeka Matebeni

Rika Verwey

Corné Dempers

Enquiries: Christo Joubert: +27 12 341-1115

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

© 2018. Published by the National Agricultural Marketing Council (NAMC).

Disclaimer:

Information contained in this document results from research funded wholly or in part by the NAMC acting in good faith. Opinions, attitudes and points of view expressed herein do not necessarily reflect the official position or policies of the NAMC. The NAMC makes no claims, promises, or guarantees about the accuracy, completeness, or adequacy of the contents of this document and expressly disclaims liability for errors and omissions regarding the content thereof. No warranty of any kind, implied, expressed, or statutory, including but not limited to the warranties of non-infringement of third party rights, title, merchantability, fitness for a particular purpose or freedom from computer virus is given with respect to the contents of this document in hardcopy, electronic format or electronic links thereto. Reference made to any specific product, process, and service by trade name, trade mark, manufacturer or another commercial commodity or entity are for informational purposes only and do not constitute or imply approval, endorsement or favouring by the NAMC.