

ANALYSIS OF SEASONAL FLUCTUATIONS IN EGG PRICES IN TÜRKIYE

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Abstract

The aim of this study was to analyse the seasonal movements in chicken egg prices in Türkiye. In this framework, the main material of the study consisted of data obtained from Afyonkarahisar Başmakçı Poultry Cooperative, TURKSTAT and FAO. In the study, real prices of eggs received by farmers reached its lowest value in June 2022. On the other hand, it was determined that it reached its highest value in January 1996. In the same period, on a monthly basis, it was determined that the prices received by egg producers showed a decreasing trend and price volatility continued ($Y_{1994-2022} = -0.00001x + 0.33387$; $R^2 = 0.51568$). Between 1994 and 2022, egg prices followed a highly fluctuating course. The reason for this fluctuation can be said to be the restrictions on imports and exports in some years in the egg poultry sector. The monthly price movements of Başmakçı cooperative were analysed as guide, broiler, pullets, new mother, old mother and double eggs. The average real price of pilot egg was the lowest in July with 40.89 TRY and the highest in December with 63.24 TRY. The average real price of "chicken eggs" was the lowest in July with 53.46 TRY and the highest in December with 76.33 TRY. The average real price of "Pullets" was the lowest in July with 66.36 TRY. With 88.47 TRY, it reached its highest value in December. The average real price of new mother egg was the lowest in May with 66.19 TRY and the highest in December with 92.87 TRY. The average real price of "old main egg" was the lowest in May with 69.66 TRY and the highest in December with 96.02 TRY. The average real price of double eggs was the lowest in May with 71.50 TRY and the highest in December with 97.86 TRY. Between 2003 and 2022, it was determined that the price of eggs on consumer basis increased against wheat flour, bread, apples, beef, poultry, fish and milk. As a result, in addition to the measures to be taken to ensure price stability, it was foreseen that increasing the production potential rather than import tendency in the supply of feed raw materials and a possible input subsidy to be provided to producers will contribute to price stability.

Key words: price, export, import, price analysis, eggs

INTRODUCTION

Poultry production is less affected by climatic and natural conditions compared to other agricultural production branches, which puts it in an advantageous position among agricultural production activities worldwide [2]. In addition, the fact that chicken meat and eggs have a rich nutritional content, their production in a short time and their relatively low cost increase their importance [10].

Eggs have an important place especially in meeting the protein, which is the most basic nutritional need of humans. Egg is a sought-after food product in meeting the nutritional values of middle and low-income families due to its affordable price and rich nutritional content [10]. In this context, fluctuations in

egg prices will affect middle and low-income families the most.

The importance of eggs, which are so important for humanity, has become more understood especially in this process of Covid-19 pandemic. Because antibodies must fulfil their duty in body defence in order to increase body resistance against viruses and bacteria, which are disease agents.

In order for antibodies to take an active role in the body defence mechanism, the body needs to get enough protein every day. Eggs are one of the most important food sources for this protein requirement [4].

Price formation in agricultural products is different from other sectors. Because in most other sectors, prices are determined by equating the final unit cost with marginal

income, while price formation in agricultural products occurs outside the initiative of sector stakeholders. In other words, the prices of agricultural products are shaped by the total supply and demand in the market rather than the costs of agricultural products for that year [5][7].

When the previous studies on price analysis were analysed; Yılmaz and Gül [14] in their study on the analysis of seasonal price fluctuations in banana prices, determined that the average real prices and seasonal index of banana had the highest values in May and the lowest values in July. Gül et al. [8] analysed the developments and seasonal fluctuations in vegetable prices and found that there was a decreasing trend in vegetable real prices. They found that fluctuations in product prices have an impact on crop pattern and trade. Şirikçi and Gül [11] argued about how the world's and Türkiye's onion pricing and output have changed. According to their analysis, the development of crop area and yield led to a 4.37-fold rise in dry onion production between 1980 and 2017. Türkiye was the seventh-largest producer of dry onions worldwide. They came to the conclusion that the dried onion trade has significantly expanded on a global scale, with export values and quantities rising by 6.73 and 3.94 times, respectively. According to their report, Türkiye's export and manufacturing share of global output fell. They discovered that the marketing margin rose in Türkiye and that the pricing of producers of dried onions changed considerably. They stated that producer prices rose mostly as a result of the rising exchange rate. Acar and Gül [1] analysed the domestic and foreign market developments of onion production in the world and Türkiye using FAO and TURKSTAT data. As a result of the study, it was determined that onion input and sales prices on producer basis were very important in onion supply.

The aim of the study was to analyse and examine the prices of chicken eggs in Türkiye on producer and consumer basis.

MATERIALS AND METHODS

The main material of the study consists of data obtained from Afyonkarahisar Başmakçı Poultry Cooperative, TURKSTAT and FAO. In addition, national and international researches on the subject were also utilised. In this context, seasonal analysis of the prices of eggs received by producers and the prices paid by consumers were carried out in order to contribute to minimising the risk by making the right production planning, marketing and storage decisions of egg producers. In order to eliminate the effect of increases in general prices on egg prices, real prices were calculated and interpreted. The real prices of eggs were found by using the PPI (Producer Price Index - 2003=100) for the period 1994-2022.

The general trend of this real price series, seasonal index and coefficients of variation were calculated using the simple average method. The current prices paid by the consumers were calculated by using the CPI (2003=100) data.

Thus, the changes and developments in prices over the years were determined and the reasons were tried to be revealed. The simple ratio method was used to calculate seasonal fluctuations in prices. In addition, the parity of wheat, maize, apple, milk and meat prices on producer basis was calculated by proportioning them to egg prices.

On the consumer basis, parities were calculated by comparing wheat, bread, apple, beef, poultry, fish and milk prices to egg prices. Afyonkarahisar Başmakçı Poultry Cooperative classifies according to egg weights. These were guide, chicken, pullets, new mother, old mother and double eggs. Coefficient of variation and price volatility were calculated to measure the change in egg prices according to seasonal fluctuations. Price volatility determines the fluctuation in prices in a certain period by using the standard deviation [1].

In addition, in order to measure how the standard deviation in egg prices is distributed according to the seasonal average, the coefficient of variation was calculated using the formula $\text{Coefficient of variation} = (\text{Standard Deviation})/(\text{Arithmetic Mean}) \times 100$.

RESULTS AND DISCUSSIONS

Egg Poultry in Türkiye and the World

Egg production is widespread in approximately 190 countries around the world. Egg production in the world, which was 51.13 million tonnes in 2000, increased by 69% and reached 86.38 million tonnes by the end of 2021. The most important producer country in egg production as of 2021 was China with a share of 34.43%. This was followed by India with a share of 7.77% and the USA with a share of 7.69%. Türkiye's egg production increased by 43% from 844 287 tonnes in 2000 to 1,206,099 tonnes by the end of 2021 [6].

Considering the world egg (shell) exports in the 2000-2021 period; egg exports, which was 944,794 tonnes in 2000, increased by 126% and reached 2,137,406 tonnes by the end of 2021. As of 2021, the Netherlands ranked first with a share of 16.43% of world egg (shell) exports, followed by Türkiye with a share of 10.35% and the USA with a share of 9.42%. The world egg (shelled) export value was 4.09 billion USD in 2021. The Netherlands, USA, Türkiye, Germany and Poland were the leading countries with the largest share in the export value [6].

According to FAO 2021 data, 36.59% of the total eggs produced in the world are imported by Germany, the Netherlands and China. In this context, Germany ranks first with a share of 15.35% of the total amount of egg (shell) imports, followed by the Netherlands with a share of 11.89% and China with a share of 9.35%. In this context, the total import value of eggs imported in the world in 2021 was 4.21 billion USD. Türkiye, on the other hand, has a share of 0.12% in the world egg imports and ranks 59th, with a total import value of 51 million dollars [6].

Egg production per capita was 328 units in the USA, 276 units in the EU, 207 units on average in the world and 228 units in Türkiye. In this context, Türkiye's egg production per capita was above the world average [6].

According to FAO data for 2021, the average egg consumption per capita in the world was calculated to be 207 units. Egg consumption per capita in the USA was 326 units, 273 units

in the EU and 222 units in Türkiye [6]. These consumption figures were above the world average.

In 2010, the amount of egg production per capita in Türkiye was 161 units, while it increased by 45% and reached 232 units by the end of 2022 [13].

In 2010, per capita egg consumption in Türkiye was 157, while it reached 222 units with an increase of 41% by the end of 2021 [13]. In order to have a healthy diet, per capita egg consumption should be 300 eggs per year [3]. However, in order for per capita egg consumption in Türkiye to reach the desired level for a healthy diet, consumption needs to be increased more.

The number of laying hens in Türkiye, which was 60,275,674 in 2005, increased by 82% and reached 109,806,327 in 2022 [13].

As of 2022, Afyonkarahisar ranks first with a share of 13.58% in the most important laying hen breeding province. This was followed by Manisa with a share of 10.27% and Konya with a share of 8.05% [13].

The amount of egg (shell) production, which was 844,287 tonnes in 2000, increased by 43% and reached 1,206,099 tonnes by 2021. In 2000, the amount of egg exports was 3,556 tonnes and the export value was 3.63 million USD. In 2021, the export amount increased 62 times compared to 2000 and reached 221,215 tonnes.

Export value increased 103 times to \$374.9 million. In the same period, the amount of imports increased by 152% from 1,051 tonnes to 2,645 tonnes, while the import value increased by 1,635% from \$3 million to \$51.96 million. In other words, Türkiye was a net egg exporter country. In addition, Iraq, United Arab Emirates, Iraq, Syria and Qatar were the leading countries where Türkiye exports eggs the most [13].

Monthly Price Analysis by Producer Türkiye Average

The real prices of eggs received by farmers were found to be the lowest in June 2022 and the highest in January 1996. It was observed that egg prices followed a rather fluctuating course between 1994 and 2022. The reason for this fluctuation can be said to be the diseases that occurred in the egg poultry

sector in some years, as well as the restrictions imposed by countries on imports and exports (Figure 1).

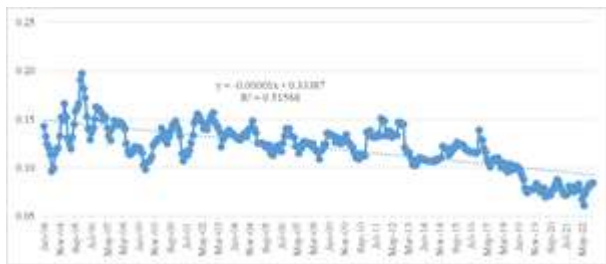


Fig. 1. Development of producer monthly egg prices in real prices in the period 1994-2022 (TL/pcs)
 Source: Own calculation.

Significant monthly fluctuations were observed in egg prices during the period analysed, but in general, the prices received by egg producers show a decreasing trend and price volatility continues ($Y_{1994-2022} = -0.00001x + 0.33387$; $R^2 = 0.51568$). Price volatility in the egg sector was 6.78% in the 1994-1999 period, 4.11% in the 2000-2009 period, 5.12% in the 2010-2022 period and 5.19% as the average of the 1994-2022 period (Figure 2).

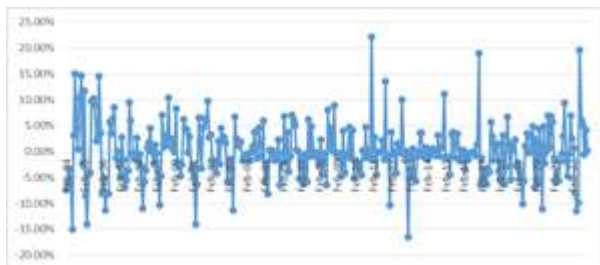


Fig. 2. Producer monthly egg price volatility in real prices
 Source: Own calculation.

Başmakçı Cooperative Monthly Price Movements

Genotype is the main factor determining egg weight or size. Besides, feeding and environmental factors are also effective. They are divided into 6 groups according to egg weight [9].

- (i) Guide Egg: Eggs weighing between 42 and 48 grams.
- (ii) Chicken Egg: Eggs weighing between 48 and 53 grams.
- (iii) Pullets Egg: Eggs weighing between 53 and 58 g.

- (iv) New Mother Egg: Eggs weighing between 58 and 62 g.
- (v) Old Mother Egg: Eggs weighing between 62 and 67 g.
- (vi) Double Egg: Eggs with a weight of 62 or more.

Guide, broiler and pullets eggs are obtained from hens up to 24th week of age. New mother and old mother eggs are obtained from hens between 24th week and 34th week. Double eggs are obtained from hens at the 34th week and beyond.

Guide egg monthly prices

In Figure 3, data on producer monthly guideline egg prices of Başmakçı Cooperative for the period 2003-2022 in real prices were given. It was determined that the real prices of eggs received by farmers were the lowest in January 2006 and July 2019, and the highest in October 2004 and December 2016. In the period in question, guide egg prices followed a very fluctuating trend.



Fig. 3. Development of producer monthly guideline egg prices of Başmakçı Cooperative in real prices in the period 2003-2022 (TL/1,000 units)
 Source: Own calculation.

During the period analysed, it was determined that there was a monthly price volatility in guide egg prices. The price volatility was 24.81% in the 2003-2009 period, 23.79% in the 2010-2022 period and 24.10% as the average of the 2003-2022 period (Figure 4).

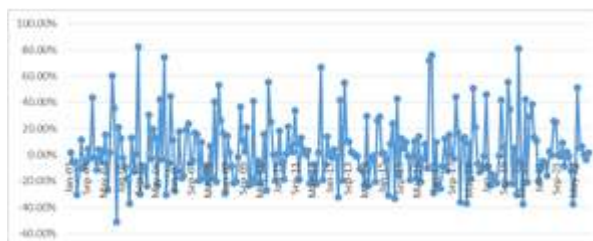


Fig. 4. Producer monthly guideline egg price volatility of Başmakçı Cooperative in real prices for the period 2003-2022
 Source: Own calculation.

The average real price of pilot egg was lowest in July with 40.89 TRY and highest in December with 63.24 TRY. The seasonal index reaches its lowest value in June and July and reaches its highest value in December. The coefficients of variation for the months of January, February, March, September, October, November and December, when the prices were above the seasonal fluctuations, were 24.23, 21.15, 23.33, 25.32, 32.46, 24.27, 26.50, respectively (Table 1).

Table 1. Seasonal fluctuations in real prices of guideline eggs for the period 2003-2022 (TL/1000 pieces)

	Arithmetic mean	Standard deviation	Coefficient of variation	Seasonal index
January	58.24	14.11	24.23	114
February	58.74	12.42	21.15	114
March	54.27	12.66	23.33	106
April	49.70	9.99	20.10	97
May	41.52	6.98	16.82	81
June	41.23	9.03	21.91	80
July	40.89	8.73	21.35	80
August	45.32	10.92	24.09	88
September	53.16	13.46	25.32	104
October	53.88	17.49	32.46	105
November	55.54	13.48	24.27	108
December	63.24	16.76	26.50	123

Source: Own calculation on the basis of data from Başmakçı Cooperative data base 2003-2022 [15].

Chicken egg monthly prices

When the producer monthly chicken egg prices of Başmakçı Cooperative in the period 2003-2022 in real prices were analysed; the average real prices of chicken eggs received by the farmer was found to be 63.67 TRY for the period 2003-2009, 65.62 TRY for the period 2010-2022 and 64.938 TRY for the period 1993-2022. It was found to be the highest in October 2004 and December 2016 and the lowest in January 2006 and October 2019 (Figure 5).



Fig. 5. Development of producer monthly chicken egg prices of Başmakçı Cooperative in real prices in the period 2003-2022 (TL/1,000 pieces) [15].

Source: Own calculation.

It was determined that the highest monthly price volatility in chicken egg prices was in September 2022 and the lowest in November 2004. The price volatility of chicken eggs was 22.38% in the 2003-2009 period, 20.49% in the 2010-2022 period and 21.12% in the 2003-2022 period average.

The average real price of chicken eggs was lowest in July with 53.46 TRY and highest in December with 76.33 TRY. The seasonal index was the lowest in June and July. It reaches its highest value in December. The coefficients of variation for the months of January, February, March, September, October, November and December, when prices were above the average, were 22.03, 18.26, 19.46, 20.96, 26.41, 19.39 and 23.08, respectively (Table 2).

Table 2. Seasonal fluctuations in real prices of chicken eggs for the period 2003-2022 (TRY/1,000 pieces)

	Arithmetic mean	Standard deviation	Coefficient of variation	Seasonal index
January	72.17	15.90	22.03	111
February	72.08	13.16	18.26	111
March	67.60	13.16	19.46	104
April	62.37	9.85	15.79	96
May	53.50	9.36	17.50	82
June	53.46	11.87	22.21	82
July	54.34	10.75	19.79	84
August	61.60	14.13	22.94	95
September	69.80	14.63	20.96	107
October	67.87	17.92	26.41	105
November	68.14	13.21	19.39	105
December	76.33	17.62	23.08	118

Source: Own calculation on the basis of data from Başmakçı Cooperative data base 2003-2022 [15].

Pullet egg monthly prices

Figure 6 showed the data on the monthly prices of pullets in real prices for the period 2003-2022 in Başmakçı Co-operative.

It was found that the real prices of pullets received by farmers were the lowest in January 2006 and the highest in June 2003.



Fig. 6. Development of producer monthly pullet egg prices of Başmakçı Cooperative in real prices in the period 2003-2022 (TL/1,000 pieces) [15].

Source: Own calculation.

In the this period, it was determined that the prices of pullets followed a highly fluctuating course and had a decreasing trend.

The price volatility of pullet was 26.70% in the period 2003-2009, 18.77% in the period 2010-2022 and 21.80% as the average of the period 2003-2022.

The average real price of pullet was the lowest in July with 66.36 TRY. With 88.47 TRY, it reaches its highest value in December. The seasonal index was the lowest in May and reaches its highest value in December. The months when the prices were above the seasonal fluctuation were January, February, March, September, October, November and December, while the months when the prices were below the seasonal fluctuation were April, May, June and July (Table 3).

Table 3. Seasonal fluctuations in real prices of pullet for the period 2003-2022 (TRY/1,000 pieces)

	Arithmetic mean	Standard deviation	Coefficient of variation	Seasonal index
January	83.93	17.40	20.73	109
February	83.61	13.93	16.67	108
March	78.35	14.55	18.57	101
April	72.72	10.59	14.56	94
May	62.32	10.44	16.75	81
June	68.58	28.49	41.55	89
July	66.36	12.78	19.26	86
August	76.28	17.22	22.57	99
September	84.47	15.87	18.79	109
October	81.03	20.04	24.73	105
November	80.56	14.71	18.26	104
December	88.47	19.32	21.83	115

Source: Own calculation on the basis of data from Başmakçı Cooperative data base 2003-2022 [15].

New mother egg monthly prices

The real prices of new mother egg received by farmers were determined as 79.73 TRY for the period 2003-2009, 17.37 TRY for the period 2010-2022 and 81.22 TRY for the period 2003-2022.



Fig. 7. Development of producer monthly new mother egg prices of Başmakçı Cooperative in real prices in the period 2003-2022 (TRY/1,000 pieces) [15].
 Source: Own calculation.

It was determined that it reached its highest value in October 2004 and December 2016 and its lowest value in January 2006 (Figure 7).

When the price volatility was analysed on a monthly basis, the price volatility of new main eggs was 18.82% in the 2003-2009 period, 17.37% in the 2010-2022 period and 17.85% as the average of the 2003-2022 period (Figure 8).

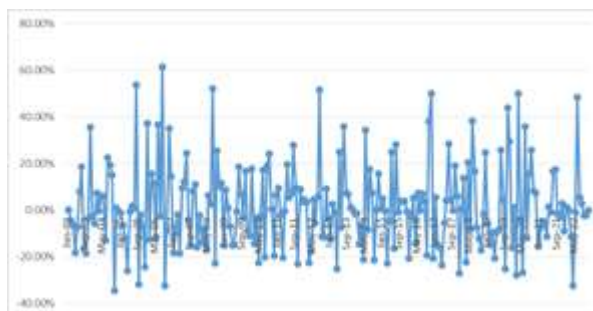


Fig. 8. Producer monthly new mother egg price volatility of Başmakçı Cooperative in real prices for the period 2003-2022 [15].
 Source: Own calculation.

The average real price of new mother eggs was the lowest in May with 66.19 TRY and the highest in December with 92.87 TRY. The seasonal index was the lowest in May and the highest in December.

The months when the prices were above the seasonal fluctuation were January, February, March, August, September, October, November and December, while the months when the prices were below the seasonal fluctuation were April, May, June and July (Table 4).

Table 4. Seasonal fluctuations in real prices of new mother eggs for the period 2003-2022 (TRY/1,000 units)

	Arithmetic mean	Standard deviation	Coefficient of variation	Seasonal index
January	88.20	17.09	19.38	109
February	87.46	14.09	16.11	108
March	82.30	14.51	17.63	101
April	76.44	10.44	13.65	94
May	66.19	10.79	16.30	81
June	67.35	11.88	17.64	83
July	71.42	12.37	17.33	88
August	81.74	16.78	20.52	101
September	89.99	15.94	17.71	111
October	85.57	19.49	22.77	105
November	85.11	13.80	16.21	105
December	92.87	18.47	19.89	114

Source: Own calculation on the basis of data from Başmakçı Cooperative data base 2003-2022 [15].

Old mother egg monthly prices

Between 2003 and 2022, it was determined that the highest value of old mother egg prices on a monthly basis in Başmakçı cooperative was in October 2004 and December 2016, while the lowest value was in January 2006. During the period analysed, old mother egg prices followed a fluctuating course on a monthly basis and it was determined that price volatility was in question ($y=0.00061x + 59.51436$; $R^2 = 0.00595$) (Figure 9).

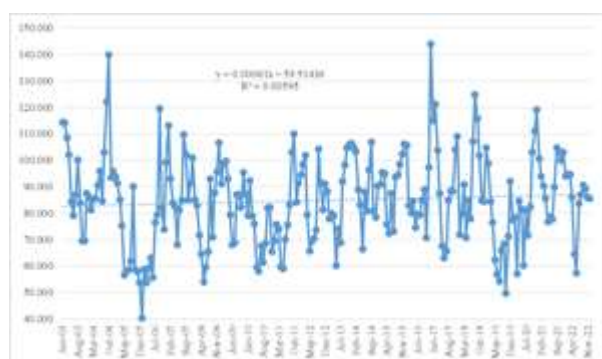


Fig. 9. Development of producer monthly old mother egg prices of Başmakçı Cooperative in real prices in the period 2003-2022 (TRY/1,000 pieces)[15]
 Source: Own calculation.

Old mother egg price volatility was 17.88% in 2003-2009 period, 16.59% in 2010-2022 period and 17.01% in 2003-2022 period. The average real price of old mother egg was the lowest in May with 69.66 TRY and the highest in December with 96.02 TRY. The seasonal index was the lowest in May and the highest in December.

Table 5. Seasonal fluctuations in real prices of old mother eggs for the period 2003-2022 (TRY/1000 units)

	Arithmetic mean	Standard deviation	Coefficient of variation	Seasonal index
January	91.04	17.91	19.68	107
February	90.72	14.10	15.55	107
March	85.40	14.17	16.59	101
April	79.60	10.53	13.22	94
May	69.66	10.44	14.99	82
June	70.95	12.18	17.16	84
July	75.63	11.62	15.37	89
August	87.23	15.87	18.19	103
September	94.57	15.67	16.57	111
October	88.99	19.63	22.06	105
November	88.34	13.85	15.68	104
December	96.02	18.67	19.44	113

Source: Own calculation on the basis of data from Başmakçı Cooperative data base 2003-2022 [15].

The months when prices were above the seasonal fluctuation were January, February,

March, August, September, October, November and December, while the months when prices were below the seasonal fluctuation were April, May, June and July (Table 5).

Double egg monthly prices

Between 2003 and 2022, it was determined that the highest value of double egg prices in Başmakçı cooperative on producer monthly basis was in October 2004 and December 2016, while the lowest value was in January 2006. During the period analysed, double egg prices followed a fluctuating course on a monthly basis and it was determined that there was price volatility ($y = 0.00078x + 54.70207$; $R^2 = 0.00943$) (Figure 10).



Fig. 10. Development of producer monthly double egg prices of Başmakçı Cooperative in real prices in the period 2003-2022 (TRY/1,000 pieces) [15].
 Source: Own calculation.

Double egg price volatility was calculated as 17.64% in the 2003-2009 period, 15.99% in the 2010-2022 period and 16.54% in the 2003-2022 period.

The average real price of double eggs was the lowest in May with 71.50 TRY and the highest in December with 97.86 TRY. The seasonal index was the lowest in May and the highest in December.

The months when the prices were above the seasonal fluctuation were January, February, March, August, September, October, November and December, while the months when the prices were below the seasonal fluctuation were April, May, June and July (Table 6).

Table 6. Seasonal fluctuations in real prices of double eggs for the period 2003-2022 (TRY/ unit)

	Arithmetic mean	Standard deviation	Coefficient of variation	Seasonal index
January	92.62	17.80	19.22	107
February	91.95	14.12	15.35	106
March	86.80	14.26	16.43	100
April	81.13	10.63	13.10	94
May	71.50	10.61	14.84	82
June	72.84	12.45	17.09	84
July	78.21	11.94	15.27	90
August	89.65	15.94	17.78	103
September	97.31	15.91	16.35	112
October	91.10	19.84	21.78	105
November	90.17	14.08	15.61	104
December	97.56	18.55	19.02	112

Source: Own calculation on the basis of data from Başmakçı Cooperative data base 2003-2022 [15].

Annual change in egg prices in Türkiye

In real terms, egg prices have fluctuated over the years. The main reason for this variability was the decrease in production in the egg sector, restrictions on exports and imports, and the effects of input prices due to high inflation in recent years. In the period analysed, the lowest egg prices in real terms were in the 2020-2022 period. While the first highest value was in 2015, the second highest value was determined in 1992. It can be said that the main factor of the decline in egg prices between 2015 and 2020 was the restrictions imposed by the Iraqi government, which was one of the leading exporter countries of Türkiye, on egg imports in order to increase domestic egg production after 2018 [12]. There was a reverse correlation between world egg export prices, Dutch egg prices, US egg prices and Turkish egg prices received by farmers in real terms. However, there was a positive correlation between world egg prices, Dutch egg prices, US egg prices and farmer's egg prices on a current basis (Figure 11).

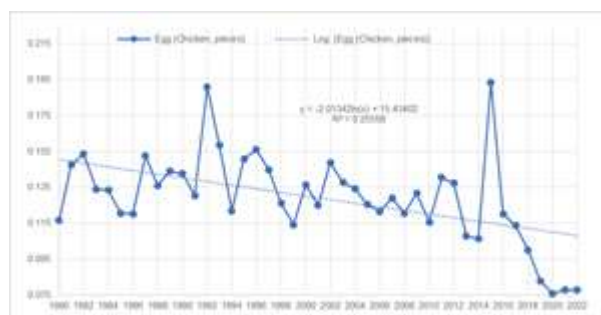


Fig. 11. Annual change in egg prices in real prices in the period 1980-2022 (TRY/pcs)

Source: Own calculation.

It can be said that the fluctuations in wheat and maize prices in the 1980-2022 period were parallel. However, since the change in maize prices was higher than wheat prices, the annual fluctuation was higher. Whilst maize prices reached their highest value in 1981-1982, wheat prices reached their highest value in 1996. While maize prices were generally higher than wheat prices until 1980-2007, they were generally lower than wheat prices between 2007-2022 (Figure 12).

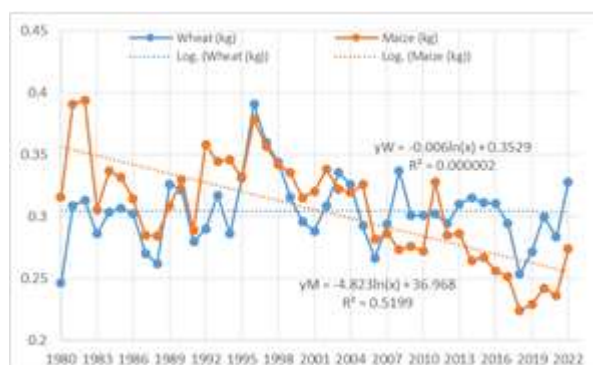


Fig. 12. Annual change in real prices of wheat and maize in the period 1980-2022

Source: Own calculation.

Seasonal fluctuations were more pronounced in apple prices in the periods analysed. Although there was a fluctuating trend in milk prices in the 1980-1998 period, it reached its highest value in 1998. In the period 1999-2022, it was determined that there was a decreasing trend in milk prices. In the same period, apple prices followed a fluctuating trend in the 1980-1995 period and reached its highest value in 1995. Seasonal fluctuations in apple prices were lowest in the 2002-2011 period and highest in the 2012-2022 period (Figure 13).

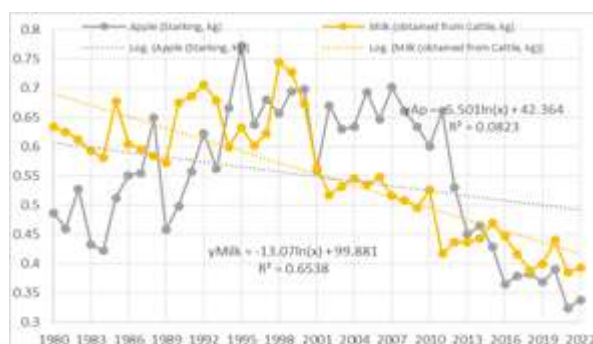


Fig. 13. Change in real prices of apples and milk in annual terms between 1980-2022

Source: Own calculation.

When the change in real prices of cattle or calf carcass prices on an annual basis between 1994 and 2022 was analysed, there was a general price volatility and a downward trend. It was determined that the highest year of cattle or calf carcass prices was 1995 and the lowest year was 2022. Beef or calf carcass prices decreased between 1995-1997, 2000-2001, 2004-2008, 2011-2014, 2018-2022, while they increased between 1994, 1998-1999, 2002-2003, 2009-2010, 2015-2016 (Figure 14).

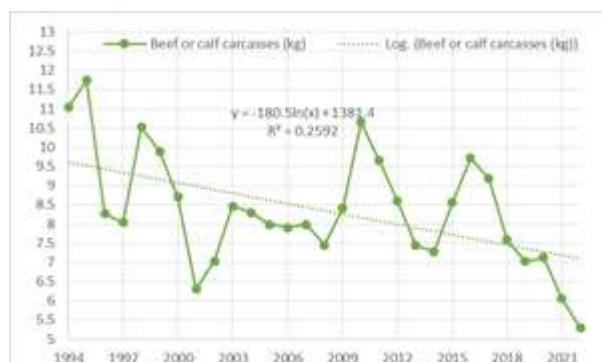


Fig. 14. Change in real prices of cattle or calf carcasses on annual basis between 1980 and 2022

Source: Own calculation.

When the annual real change in maize, milk and egg prices between 1980-2022 was analysed, it was found that milk prices showed more variability than maize and egg prices. While milk prices reached their highest value in 1998, maize prices reached their highest value in 1981-1982 and egg prices reached their highest value in 1992-2015 (Figure 15).

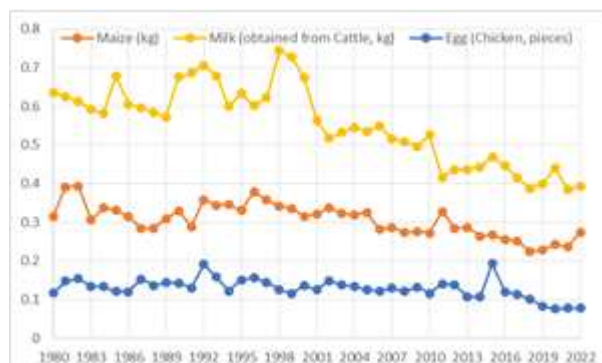


Fig. 15. Change in real prices of maize-dairy and egg prices on annual basis between 1980-2022

Source: Own calculation.

When the parities of wheat, maize, apple, milk and meat prices against egg prices for the

period 1980-2022 were analysed, the parities of wheat, maize, apple and milk prices against egg prices in 1980 were 2.11 eggs with 1 kg of wheat, 2.71 eggs with 1 kg of maize, 4.18 eggs with 1 kg of apple and 5.44 eggs with 1 kg of milk. 71 eggs with 1 kg of wheat, 4.18 eggs with 1 kg of apple and 5.44 eggs with 1 kg of milk, while 4.21 eggs with 1 kg of wheat, 3.52 eggs with 1 kg of corn, 4.33 eggs with 1 kg of apple and 5.05 eggs with 1 kg of milk were obtained by the end of 2022, respectively. In addition, while 90.40 eggs were obtained with 1 kg of meat in 1994, 68.06 eggs could be obtained with 1 kg of meat by the end of 2022. In the period analysed, wheat was the product that gained the most value against eggs, while meat was the product that lost the most value.

Price Analysis on Consumer Basis

Between 2003 and 2022, the parity of wheat, bread, apple, beef, poultry, chicken, fish and milk prices with respect to egg prices decreased. In the period analysed, it was determined that egg price increased by 25%, 12%, 52%, 25%, 13%, 15%, 43% against wheat flour, bread, apple, beef, chicken meat, fish and milk, respectively. According to these results, it can be said that the increase in egg prices has more impact on the consumer than other product prices.

CONCLUSIONS

On an annual basis, real prices received by farmers for eggs were lowest in June 2022 and highest in January 1996. In the same period, on a monthly basis, the prices received by egg producers show a decreasing trend and price volatility continues. The reason for this fluctuation can be attributed to the restrictions in imports and exports.

In the period analysed, wheat was the product that gained the most value against eggs, while meat was the product that lost the most value. Between 2003 and 2022, it was determined that the price of eggs increased against wheat flour, bread, apples, beef, poultry, fish and milk on consumer basis. According to these results, it can be said that the increase in egg prices has a greater impact on consumers than other product prices.

The ongoing price instability in egg prices and the fact that input costs were largely supplied through imports can be stated among the important weaknesses of the sector.

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