

Anomalies In Producer Prices Of Crop Products In Türkiye

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ABSTRACT

Currently, some studies on food consumer price anomalies are being conducted in Türkiye and other countries. However, the research on crop products producer price anomalies is limited. The purpose of this paper is to identify producer price anomalies for selected crop products in Türkiye over the last ten years (2013-2022) using quarterly and annual Compound Growth Rates (CGR) of the monthly price level, which allows for price monitoring after accounting for the effects of seasonality and inflation on prices, making it an ideal way to use prices as the basis of an early warning indicator. According to the results, moderately or abnormally high prices were measured in all years except for 2015. Sunflower, sugar beet, potatoes and pistachio were the crop products abnormally high prices were measured more than one year in this period. Abnormally high prices were measured in the years of 2014 and 2021 at most. And, no abnormally high prices were measured in the years of 2015, 2017, 2018, 2019 and 2022. When the last three year situations of crop products with moderately or abnormally high producer prices were examined, wheat and maize were the crops with moderately high prices, and sunflower and sugar beet were the crops with abnormally high prices in 2020. In 2021, only the price of wheat was moderately high; cotton, maize, and barley were the crops with abnormally high prices. No abnormally high prices were measured in 2022, and the prices of wheat, cotton, tomatoes, maize, and potatoes were moderately high.

Key words: Crop products, producer prices, price anomalies, price monitoring

Türkiye’de Bitkisel Ürünlerin Üretici Fiyatı Anomalileri

ÖZ

Hâlihazırda, Türkiye’de ve diğer ülkelerde gıda tüketici fiyat anomalilerine yönelik çalışmalar yapılmaktadır. Ancak, bitkisel ürünlerin üretici fiyat anomalilerine yönelik çalışmalar sınırlıdır. Bu çalışmanın amacı, Türkiye’de son on yılda (2013-2022) seçilen bitkisel ürünler için üretici fiyat anomalilerini, mevsimsellik ve enflasyonun fiyatlar üzerindeki etkilerini dikkate alarak fiyatların izlenmesine olanak sağlayan aylık fiyat seviyesinin üç aylık ve yıllık Bileşik Büyüme Oranlarını (CGR) kullanarak belirlemektir. Bu yöntem, fiyatların erken uyarı göstergesi olarak kullanılması için ideal bir yoldur. Sonuçlara göre, on yıllık dönemde 2015 yılı hariç tüm yıllarda orta düzeyde veya anormal yüksek fiyatlar gözlemlendi. Bu dönemde, ayçiçeği, şekerpancarı, patates ve Antep fıstığı ürünleri için anormal yüksek fiyatlar birden fazla yılda görüldü. Anormal yüksek fiyatlar en fazla 2014 ve 2021 yıllarında görülürken, 2015, 2017, 2018, 2019 ve 2022 yıllarında anormal yüksek fiyat gözlemlenmedi. Üretici fiyatları orta veya anormal yüksek olan bitkisel ürünlerin son üç yıllık durumları incelendiğinde, 2020 yılında buğday ve mısır orta düzeyde yüksek üretici fiyatlarına sahip ürünler olurken, ayçiçeği ve şeker pancarı fiyatları anormal yüksek olan ürünler oldu. 2021 yılında ise sadece buğday üretici fiyatı orta derecede yüksekken, pamuk, mısır ve arpa fiyatları anormal yüksek olarak gerçekleşti. 2022 yılında anormal yüksek fiyatlar gözlemlenmezken, buğday, pamuk, domates, mısır ve patates fiyatları orta derecede yüksek olarak gerçekleşti.

Anahtar kelimeler: Bitkisel ürünler, fiyat anomalileri, fiyat izleme, üretici fiyatlar

INTRODUCTION

Food price indexes around the world have risen significantly since 2000. From 2000 to 2022, the global annual real food price index increased from 67 to 141, the cereal price index increased from 65 to 151, and the vegetable oil price index increased from 54 to 184. (FAO, 2023). During this time, the global annual real food price index peaked during the 2007/2008 and 2011 food crisis, and after the COVID-19 pandemic and Russia-Ukraine war, when agricultural commodity price fluctuations became more severe, with negative societal consequences.

According to FAO figures, the world food price index was 73 in 2003, increased to 119 in 2011, decreased to 96 in 2019, and increased to 141 in 2022 as a result of the pandemic and the Russia-Ukraine war. In Türkiye, the producer price index for agricultural products was 43 in 2003, 77 in 2011, 157 in 2019, and 263 in 2022 (FAOSTAT, 2023). However, while global food prices fell between 2011 and 2019, food prices in our country continue to rise and are a major driver of inflation (Akcelik and Yucel, 2016; Ulusoy and Sahingoz, 2020). The main reason that food prices in Türkiye followed the opposite path as global food prices was the country's high reliance on foreign agricultural inputs (Bayramoglu and Yurtkur, 2015; Özbek, 2023). The depreciation of the Turkish lira against the dollar and the euro raised the prices of energy, fertilizer, and animal feed. As a result, there was a significant increase in food prices (Özbek, 2023). After 2019, producer prices of crop products in Türkiye increased in recent years in line with the global situation, but the increase in Türkiye was greater than the global increase. The reason was the same as above that the country's high reliance on foreign agricultural inputs. The reason was the same as stated above: the country's reliance on foreign agricultural inputs.

Price increases in agricultural commodities are influenced by supply and demand drivers. Timmer (2008) classified these supply drivers as seed technology, irrigation, total harvested area, climate change, knowledge and management skills, weather conditions, diseases, fuel and fertilizer costs; and demand drivers as population growth, income growth, dietary changes and tastes, meat and livestock economy, exchange rates, speculation, biofuels, panic or hoarding, government trade and inventory policies.

Özbek (2023) highlighted that the Compound Growth Rates (CGR) of the monthly price level method used in this study to measure real producer price anomalies for crop products allows for price monitoring after accounting for the effects of seasonality and inflation on prices, making it an ideal way to use prices as the basis of an early warning indicator (Araujo et al., 2012, Dawe and Doroudian, 2012; WFP, 2014; Baquedano, 2015). The method has recently been used in the literature to detect food price anomalies (Baquedano, 2015; Traore and Diop, 2021; UN, 2022, Özbek, 2023).

Currently, there are some studies being conducted on food consumer price anomalies in Türkiye and other countries (e.g. Özbek, 2023; TurkStat, 2023a; Letta et al. 2022; Selvi and Cavlak, 2021; King, 2015; Cavalcanti et al. 2015). However, there is a scarcity of research on crop products producer price anomalies. The goal of this paper is to identify producer price anomalies for selected crop products in Türkiye over the last ten years (2013-2022) using quarterly and annual CGR, of the monthly price level.

MATERIALS AND METHODS

For measurements, crop products with high weights in crop production value (58.5%), calculated by TurkStat by multiplying of crop production quantity and unit price, for 2022 were chosen. These crop products were wheat, maize, barley, sunflower, rice (in husk), tomatoes, potatoes, sugar beets, cotton, hazelnuts, walnuts, pistachios, olives, green tea. Data on crop product prices were gathered from Province and District Directorates of Ministry of Agriculture and Forestry, Commercial Exchange Markets, Cooperatives, Ministry of Agriculture and Forestry General Directorate of Forestry, Turkish Grain Board, General Directorate of Tea Enterprises, Tobacco and Alcohol Market Regularity Authority and Presidency of Sugar Department by TurkStat (TurkStat, 2023b). In this study, the real producer price values were deflated using producer price index (PPI) (2015=100).

Crop product producer price anomalies for selected products in Türkiye for the period 2013-2022 are measured in this study using the indicator of food price anomalies (IFPA), which detects unusually high or low prices for a food commodity price series over a specific time period, through quarterly and annual Compound Growth Rates (CGR) of the monthly price level (Özbek, 2023). The IFPA indicator requires an at least 5-year continuous monthly price series (UN, 2022b). The last ten years, including the COVID-19 pandemic, were used as a basis for this study to reveal changes in food prices over the last decade (Özbek, 2023).

A CGR is a geometric mean that assumes a random variable grows at a constant rate over time (Anson et al., 2011). Baquendo (2015) mentioned that the assumption of a constant rate of growth ensures that the

effect of price volatility is smooth. The CGR is the growth in any random variable from time t_0 to time t_n raised to the power of one over the length of the time period under consideration (Eq. 1).

$$CGR_t = \left(\frac{P_{t_n}}{P_{t_0}} \right)^{\frac{1}{t_n - t_0}} \quad [1]$$

Where P_{t_0} is the starting price of the period, P_{t_n} is the ending price of the period, and $t_n - t_0$ is the time in months between t_0 and t_n .

Seasonality has a considerable impact on crop producer prices. Seasonality, according to Gilbert et al. (2017), contributes to price volatility. To better observe price anomalies, it is critical to remove seasonal impacts from producer prices. So, in this method, Baquendo (2015) modified CGR to account for seasonality by defining two CGRs, a Quarterly Compound Growth Rate (CQGR) and an Annual Compound Growth Rate (CAGR). CQGR and CAGR are calculated as moving averages over the three and twelve months preceding month t , respectively. The abnormal price growth threshold is then defined as an absolute positive change in the CGR, either annual or quarterly, that is at least one standard deviation of the mean CGR over a specific month. Where $CXGR_{yt}$ is either the quarterly or annual compound growth rate in month t for year y , \overline{CXGR}_t is the average of either the quarterly or annual compound growth rate for month t across years y , $\hat{\sigma}CXGR_t$ is standard deviation of either the quarterly or annual compound growth rate for month t over years y , and $X_IPA_t^Z$ is the quarterly or annual indicator of price anomaly (watch/alert/normal) (Eq. 2).

$$\left(\frac{CXGR_{yt} - \overline{CXGR}_t}{\hat{\sigma}CXGR_t} \right) = X_IPA_t^Z \begin{cases} 0.5 \leq X_IPA_t^Z < 1 & \text{Price Watch } (X_IPA_t^W) \\ X_IPA_t^Z \geq 1 & \text{Price Alert } (X_IPA_t^A) \\ o.w. & \text{Alert } (X_IPA_t^N) \end{cases} \quad [2]$$

The following weighted sum is used to calculate the indicator of price anomalies (IPA_t) for month t (Eq. 3) (Baquendo, 2015):

$$IPA_t = \gamma * Q_IPA_t^Z + (1 - \gamma) * A_IPA_t^Z \quad [3]$$

The value of γ is the weight of the deviations of the quarterly or annual compounded growth rates. Finally, the annual indicator of food price anomaly (IFPA) for a given year was calculated as the average weight of all months (Özbek, 2023).

RESULTS

Nominal and real producer price trends over the last decade were investigated by categorizing various crop products with high weights in crop production value for 2022 into specific groups. Figure 1 & 2 shows the trends in nominal and real producer prices.

Change in nominal producer prices:

In the cereals group, nominal producer prices of wheat, barley, and maize varied very similarly over the last decade, and they increased slightly through mid-2021. After that date, they rose sharply until mid-2022, when they began to fall slightly. Rice producer prices fluctuated and increased much more than other cereals from 2013 until mid-2021. Its producer price increased steadily and sharply after mid-2021 (Figure 1(a)).

When we examined nominal producer prices of industrial crops, we found that cotton producer prices fluctuated and increased slightly from 2013 until August 2021. They increased dramatically after that date until April 2022. The prices then decreased in August 2022 before rising sharply in September 2022. And they decreased in the fourth quarter of 2022. From 2013 to mid-2019, sunflower producer prices fluctuated and increased slightly. They increased steadily and sharply from that point until the end of 2022. Sugar beet producer prices increased steadily in some months of the year over the last decade, but the most significant increases occurred in Junes of 2020, 2021, and 2022. Olive producer prices increased steadily over the last decade, but they increased sharply after the end of 2021. Green tea producer prices increased steadily in some months of the year over the last decade, similar to sugar beet, but the price increased remarkably in May 2022 (Figure 1(b)).

Potato nominal producer prices fluctuated slightly until May 2018. Then they increased sharply until April 2019 and decreased until the end of the year. They fluctuated after that until September 2021. The prices then increased sharply until the end of 2022. Until the end of 2021, tomato producer prices were extremely volatile. Prices then skyrocketed until May 2022. They decreased and increased sharply after that date until September 2021 and the end of the year, respectively (Figure 1(c)).

When we examined nut nominal producer prices, we observed that hazelnut producer prices increased slightly from 2013 to mid-2015, then decreased slightly until the beginning of 2018, with the exception of the increase at the end of 2015. Prices rose steadily after that date. From 2013 to the fourth quarter of 2021, walnut producer prices increased steadily and slightly. They began to rise more sharply in the

fourth quarter of 2021. Pistachio producer prices increased by fluctuating until mid-2021. After that date, the prices increased substantially (Figure 1(d)).

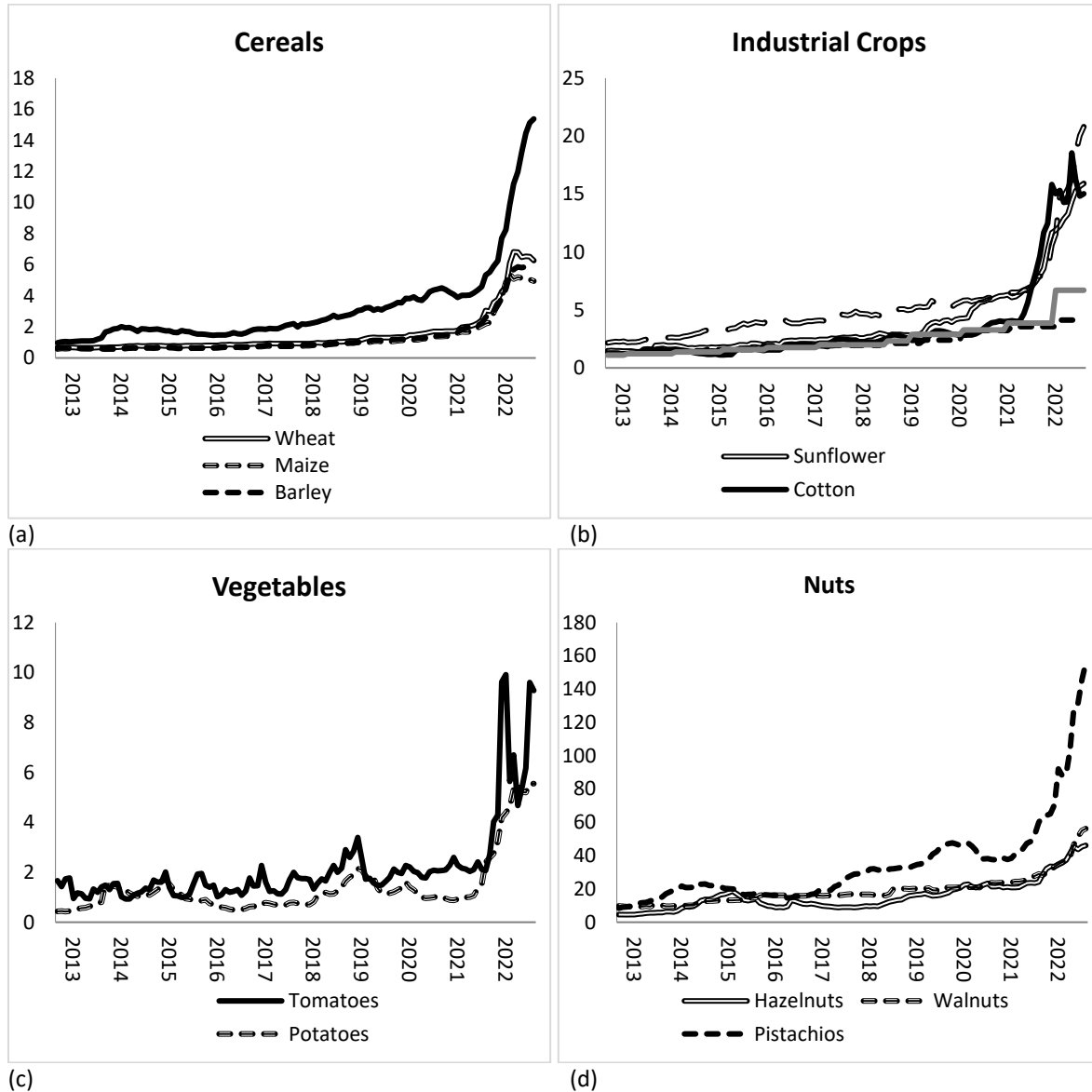


Figure 1. Nominal producer price trends of crop products over the last decade in Türkiye

Change in real producer prices:

Except for some months between mid-2021 and mid-2022, when real maize producer prices were differentiated from those of wheat and barley, real producer prices of wheat, barley, and maize varied very similarly over the last decade in the cereals group. From 2013 to mid-2014, the real rice price rose sharply, then fell until mid-2016. They fluctuated and rose after that date until the end of 2021. Then, prices rose sharply until October 2022, before falling until the end of the year (Figure 2(a)).

Real green tea producer prices fluctuated from 2013 to mid-2021 and sharply decreased until April 2022 then fluctuated up to the end of year. Real cotton producer prices fluctuated from 2013 until August 2021, then sharply increased until the beginning of 2022. Then it decreased until the end of 2022, except for August and September. Real sugar beet producer prices constantly increased from 2013 to the end of 2022. Except for May 2022, when the variation of these two crops was opposite, the fluctuation of real sugar beet producer prices was very similar to that of green tea (Figure 2(b)).

Real tomato producer prices have fluctuated significantly over the last ten years. Real potato prices increased from 2013 to the beginning of 2014. It then fluctuated before peaking again in April 2015. After that

date, the real price decreased until October 2016 and increased until mid-2019, then decreased until mid-2021. The fluctuation of real prices for this crop was so low in 2022 (Figure 2(c)).

Over the last ten years, real pistachio producer prices have fluctuated, reaching peaks in September 2016, mid-2018, and at the end of 2019. From 2013 to mid-2015, real hazelnut producer prices rose sharply, then fell until mid-2016. Then it fluctuated and fell slightly at the end of 2022. Over the last ten years, real walnut producer prices have not fluctuated significantly. It rose until mid-2016, then fell until the end of 2022 (Figure 2(d)).

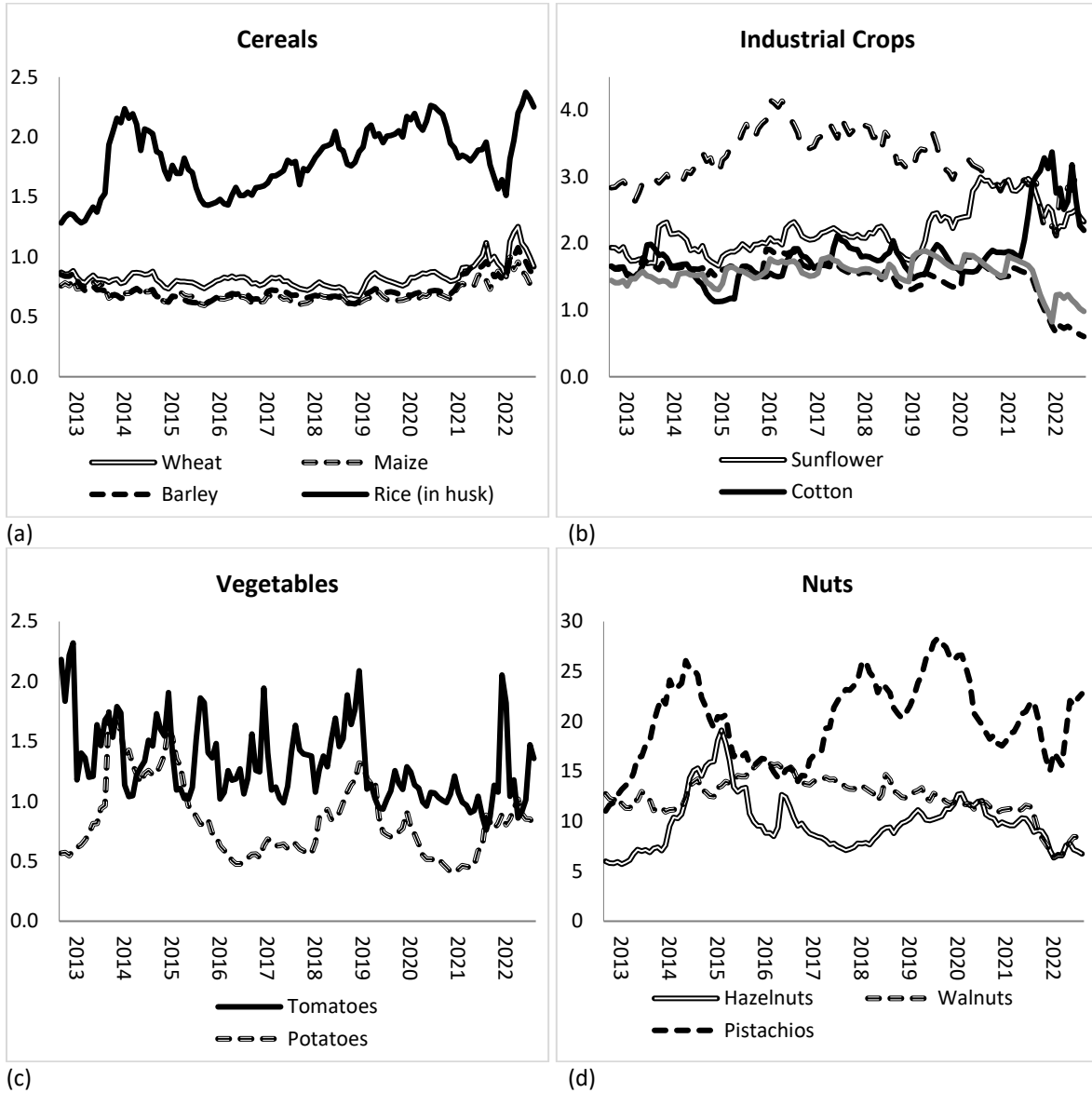


Figure 2. Real producer price trends of crop products over the last decade in Türkiye

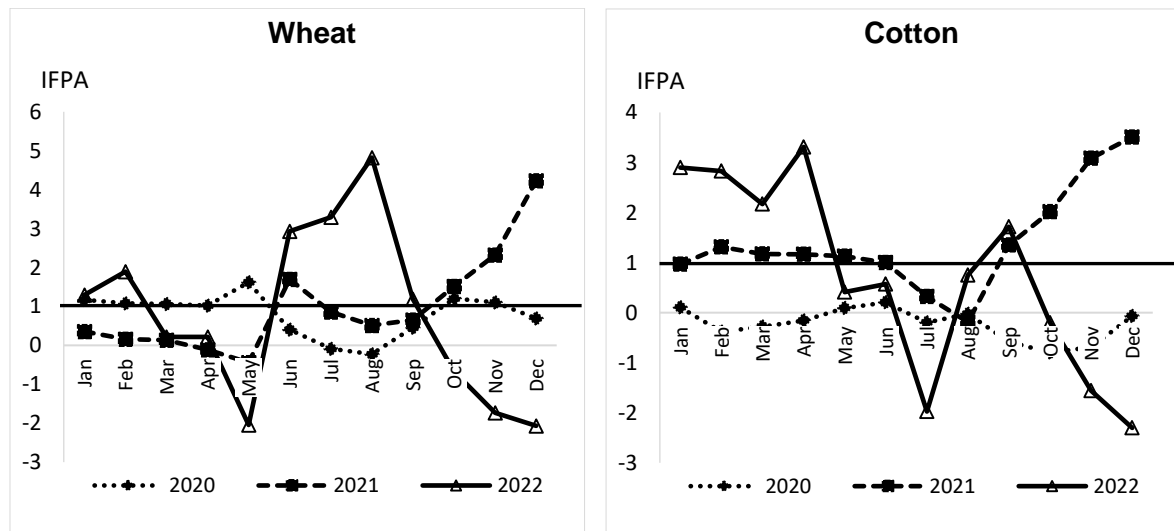
According to the results of the IFPA, moderately or abnormally high prices were measured in all years except for 2015. Furthermore, wheat, cotton, tomatoes, maize, olives, potatoes and pistachio were the crop products moderately high prices were measured more than one. Abnormally high prices were measured in the years of 2014 and 2021 at most. And, no abnormally high prices were measured in the years of 2015, 2017, 2018, 2019 and 2022. No abnormally high prices were measured for wheat, tomatoes, walnut and green tea over ten years. And, sunflower, sugar beet, potatoes and pistachio were the crop products abnormally high prices were measured more than one (Table 1).

Table 1. Annual indicator of food price anomalies (IFPA) for selected products in Türkiye.

Crop products	Annual Indicator of Food Price Anomalies (IFPA)											
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
Wheat	0.0	-28.5	0.0	-0.9	0.6	-0.4	-0.5	0.6	0.8	1.0	0.8	
Cotton	0.0	-0.5	-0.2	0.1	0.9	0.3	-0.2	-0.4	-0.2	1.4	0.7	
Tomatoes	0.0	0.4	-2.3	0.1	0.0	0.2	0.7	-0.3	-0.4	-0.3	1.0	
Hazelnuts	0.0	0.4	2.6	0.0	-1.9	-0.6	0.1	0.5	0.2	-0.6	-0.9	
Sunflower	0.0	-1.1	3.4	-0.4	0.6	-0.3	-0.4	-0.2	1.4	0.0	-1.4	
Maize	0.0	0.4	-0.7	-0.3	0.5	0.2	0.6	0.0	0.6	1.7	1.0	
Olives	0.0	0.9	8.0	0.4	0.9	-0.9	-0.4	-0.8	-0.6	-0.4	-0.3	
Sugar beets	0.0	0.0	-0.6	-0.4	1.6	-0.9	-0.6	-0.5	1.1	-0.4	-4.6	
Barley	0.0	-1.0	-7.1	-0.6	0.7	0.2	-0.3	0.3	0.2	1.7	0.1	
Walnuts	0.0	-0.6	-1.1	0.3	0.5	-1.8	-0.5	-0.5	-0.4	-0.3	-3.0	
Potatoes	0.0	1.3	12.8	-0.5	-1.2	0.5	0.7	0.2	-0.8	0.1	0.9	
Green tea	0.0	-0.4	-1.7	-0.6	0.8	-0.9	-1.7	0.4	-0.3	-0.8	-3.6	
Pistachios	0.0	3.8	10.5	-1.0	-0.6	0.6	0.5	-0.2	-0.6	-0.6	-0.2	
Rice (in husk)	0.0	-0.1	2.6	-0.9	-0.4	0.5	0.3	0.0	0.2	-1.0	0.4	

IFPA < 0.5: Normal; 0.5 ≤ IFPA < 1: Moderately high; IFPA ≥ 1: Abnormally high

When the last three year situations of crop products with moderately or abnormally high producer prices were examined, wheat and maize were the crops with moderately high prices, and sunflower and sugar beet were the crops with abnormally high prices in 2020. In 2021, only the price of wheat was moderately high; cotton, maize, and barley were the crops with abnormally high prices. No abnormally high prices were measured in 2022, and the prices of wheat, cotton, tomatoes, maize, and potatoes were moderately high (Table 1). Figure 3 depicts monthly fluctuations in IFPA values and real prices for these crop products.



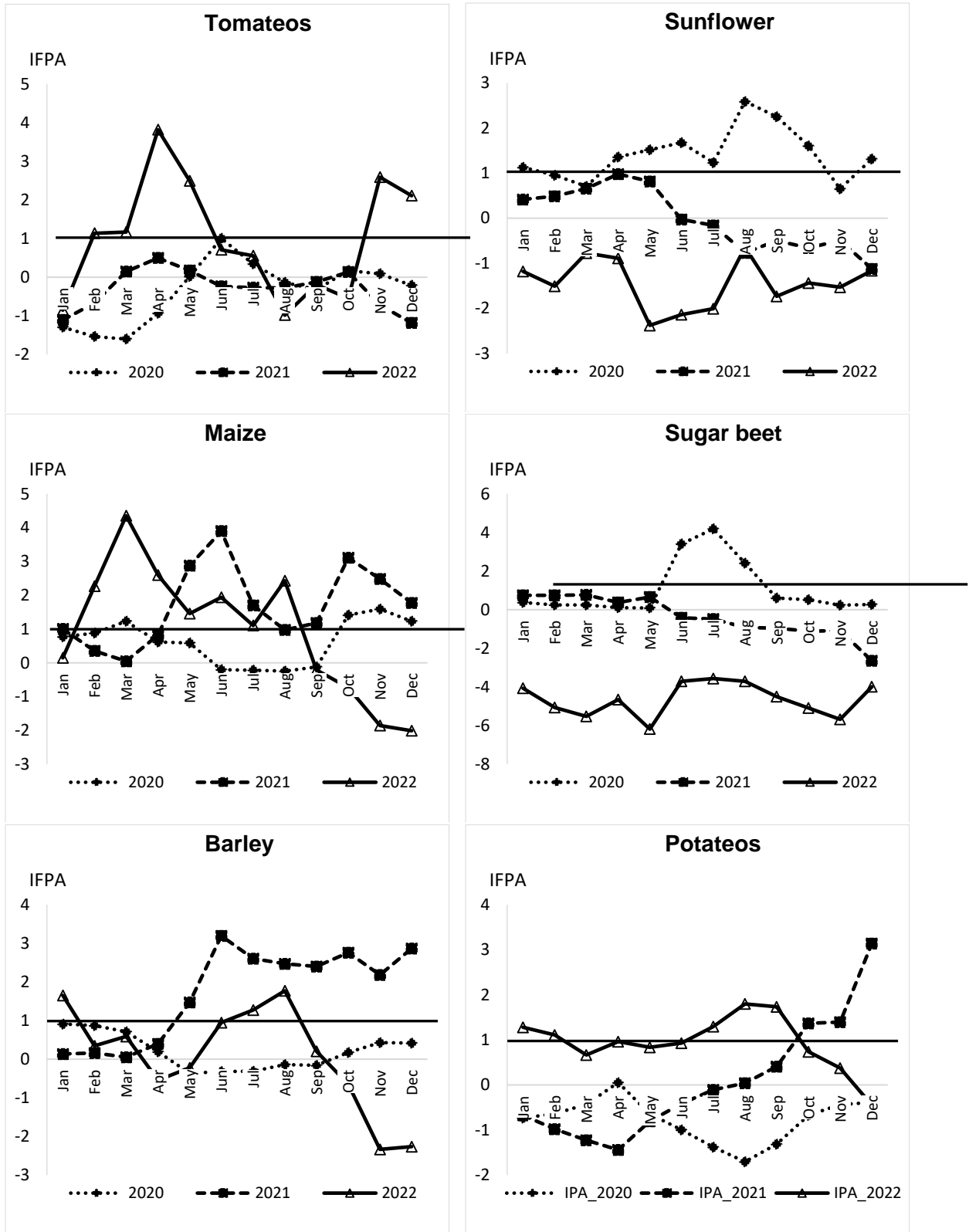


Figure 3. Indicator of food price anomalies (IFPA) of food items with abnormally high food prices in 2020 and 2021 in Türkiye

DISCUSSION

The results were discussed in two parts: (i) before 2020 and (ii) from 2020 in order to analyze better the impact of COVID-19 pandemic, which started in the beginning of December of 2019 in the world and in March of 2020 in Türkiye, on producer prices of crop products.

Producer price anomalies before 2020:

The decrease in hazelnut yield caused by the frost disaster in 2014 (Çamoğlu, 2017) resulted in real producer price anomalies this year. Potato production decreased significantly in 2013 compared to the previous year, and this decrease in supply caused real producer prices to rise between mid-2013 and mid-2014. This increase can be explained by the cobweb theorem, which explains supply and demand disparities caused by periodic price fluctuations caused by increasing demand during the current period for a variety of reasons (Doğan and Onurlubaş, 2016).

The decrease in pistachio production due to climatic conditions caused the anomalies in the real producer price of pistachios in the last quarter of 2013 and the first half of 2014. The 7.9% decrease in olive production in 2013 caused an anomaly in 2014 real olive producer prices. The 7.8% decrease in rice production in 2014 caused an anomaly in real rice producer prices in 2014 October. When compared to the previous year, the purchase base price of sugar beet, which is set by the government, increased by 20% in 2016. This circumstance led to a real producer price anomaly in 2016 for sugar beet.

Producer price anomalies from 2020:

When the last three years of crop products with moderately or abnormally high producer prices in these years were analyzed, it was found that the abnormally high producer prices were intensely seen in 2021 and 2022, with the exception of sugar beet and sunflower (Figure 3). For these crops, the abnormally high producer prices were observed in 2020.

High producer price anomalies were observed for wheat producer prices after September in 2021 due to price increases in agricultural inputs influenced by changes in the foreign exchange rate, which directly affected the cost of agricultural inputs. Another significant cause of anomalies was a decrease in domestic supply due to drought, with wheat production in Türkiye falling 13.9% in 2021 compared to the previous year (Özbek, 2023). Prices were abnormally high in the summer months of 2022. During this time, Türkiye's wheat prices were affected by the country's ongoing pressure on agricultural input costs, the increase in global wheat prices in 2022, the war between the world's two largest exporters, Ukraine and Russia, the export ban imposed on the domestic market of India, the country that produces the most, the increase in global energy and fertilizer prices, and the problems caused by the climate crisis.

Abnormally high producer prices were observed in the first quarter of 2022 for cotton. Cotton prices in Türkiye increased during these months, paralleling the increase in global markets. Cotton prices in global markets rose due to two factors in particular. The first was the rise in oil prices, and the second was the drop in cotton harvest due to the drought.

There was no producer price anomaly in 2020 and 2021 for tomatoes. In 2022, that was observed between February and May, November and December. It is possible to explain the decrease in the first half of 2022 with the decrease in tomato production in this period and the increase in agricultural input prices.

In 2021 and 2022, there was no producer price anomaly for sunflower. That was observed in 2020 from April to the end of the year. Özbek (2023) summarized the reason for abnormally high sunflower producer prices in 2020 as follows: Global sunflower seed production fell by 10.3% in 2020 compared to the previous year. It also fell in Russia and Ukraine, which contribute significantly to global sunflower seed production (52,6% of total production), to 13,4% and 14,1%, respectively (FAOSTAT, 2022), due to pre-bloom drought (MoAF, 2022). This decrease resulted in an increase in global sunflower producer prices in 2020. Türkiye was directly impacted by the price increase in foreign markets due to its high foreign dependence on sunflower. That is, Türkiye imported 1,145 million tonnes of sunflower seed, accounting for nearly 55% of domestic production (MoAF, 2022).

Producer price anomalies for maize were observed in the fourth quarter of 2020 and from May to the end of the year in 2021. Moreover, price anomalies were observed in 2022 from February to August. The Turkish Grain Board (TGB) maize reference price, which increased by 21% over the previous year, caused price anomalies in the fourth quarter of 2020. With the decrease in maize stocks before the 2021 harvest, an increase in producer prices was observed. The increase in the TGB maize reference price and in agricultural input prices due to the sharp increase in foreign exchange caused anomalies in maize producer prices in the following months of 2021. The impact of the Ukraine-Russia war accelerated the rise in global maize prices in 2022. Maize producer prices in Türkiye increased rapidly as a result of the effects of global markets and the increase in agricultural input costs.

Sugar beet producer price anomalies were only observed in the summer months of 2020. Sugar beet reference prices in Türkiye are determined by negotiations between companies and producers or producer representatives, which begin in October, prior to beet planting. They are determined by an agreement reached by the end of November, taking into account the annual inflation rate, increases in producer costs, global beet prices, and alternative product parity (OG, 2021). Although the reference price was decided at the end of November of the previous year, the increase was reflected in June of 2020 because the purchases sugar mills were made in the following year.

Abnormally high producer prices were observed for barley from May 2021 to January 2022, and in July and August 2022. The reason for the abnormality in barley prices in May-June 2021 is a decrease in the stocks in the market during the season and subsequently an increase in the demand for feed raw materials. Every year, the TGB establishes a reference price for barley in order to keep market prices from falling below a certain level. This price is determined by many factors, including the producer cost, economic indicators, production amount, previous year's purchase prices, and the profit margin that will ensure the continuation of production. TGB set the reference price 37.3% higher than the previous year in 2021 in order to minimize the economic impact of a 30.7% decrease in barley production compared to the previous year on barley producers. This situation resulted in significant price anomalies between June 2021 and September 2021. The sharp increase in exchange rates in Türkiye after September 2021 increased the cost of agricultural inputs, which are heavily dependent on foreign sources, causing a price anomaly until January 2022. TGB announced a barley purchase price of 1.750 TL per ton in 2021. This price was significantly raised in 2022, reaching 5.500 TL per ton. Although this increase caused an abnormality in prices during the harvest period, the 47.8% increase in barley production caused prices to fall in the months that followed.

Producer prices for potatoes were abnormally high between October 2021 and February 2022, and between July 2022 and September 2022. The price abnormality in 2021 was caused by a decrease in production as a result of last year's low price, which was similar to the 2013-2014 period. This demonstrates that the cobweb theorem was observed once more in potato prices. It is important to take the necessary measures to minimize the effect of this situation, which is frequently observed in such products. It is possible to take measures such as subsidies for the product and directing the farmers to plant by informing them about the theorem in order to prevent the decrease in the cultivation of the product whose price decreased the previous year. The decrease in potato harvest due to the frost event in Adana caused an abnormality in potato prices in the middle of 2022, along with an increase in input costs.

It can therefore be concluded from the study results that the producer price anomalies before 2020 were especially observed in 2014 because the climatic conditions affected the supply of crop products and that increased the producer prices of them. Regarding the producer price anomalies from 2020, the sharp increase in exchange rates in Türkiye after September 2021 increased the cost of agricultural inputs, which are mainly dependent on foreign sources, causing the producer price anomalies for crop products. And the consequences of it continued in 2022 with the effects of Russia-Ukraine war. The fact that the global agricultural price index reached an all-time high in nominal terms in April 2022 (WB, 2022) influenced producer prices of crop products in Türkiye. Crop product producer prices fell in Türkiye as well as the rest of the world in the second half of 2022, as currency fluctuations caused an increase in the cost of agricultural inputs in Türkiye, and a United Nations-brokered deal between Ukraine and Russia, orchestrated by Türkiye, facilitated the resumption of grain exports in July 2022. (WB, 2022).

Conflict of Interest Statement: The authors declare that they have no conflict of interest.

Contribution Rate Statement Summary of Researchers: The authors declare that they have contributed equally to the article. The opinions and contents of the article remains the responsibility of the author, not of the Turkish Statistical Institute.

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