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Comparative Analysis of Price Volatility of Wheat, Corn, and Soybeans on the Domestic and International Markets

Komparativna analiza volatibilnosti cena pšenice, kukuruza i soje na domaćem i međunarodnom tržištu

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Abstract: This paper analyzes the price volatility of wheat, corn, and soybeans in Serbia over the period 2021-2025, with a comparative focus on price movements at major international grain exchanges. The main objective of the research is to identify the level and dynamics of price fluctuations and to determine the years characterized by increased price instability. The analysis is based on monthly price data for wheat, corn, and soybeans and applies descriptive statistical methods, with particular emphasis on standard deviation and the coefficient of variation as indicators of price volatility. The results show that the highest level of price instability was recorded in 2022, primarily due to global geopolitical disturbances, disruptions in supply chains, and increased uncertainty in international commodity markets. In the subsequent period, a gradual stabilization of prices is observed, although volatility remains higher compared to the pre-2020 period. The comparative analysis confirms a high degree of integration between the Serbian grain market and international price movements, while also highlighting specific domestic characteristics reflected in the intensity and timing of price adjustments. The findings underline the importance of price volatility analysis for agricultural producers, market participants, and policymakers, as a basis for improved risk management and more effective formulation of economic and agricultural policies.

Keywords: wheat, corn, soybeans, price volatility, descriptive statistics, grain market, Serbia.

Sažetak: Ovaj rad analizira volatibilnost cena pšenice, kukuruza i soje u Srbiji u periodu od 2021. do 2025. godine, uz komparativno poređenje sa kretanjima cena na vodećim međunarodnim berzama žitarica. Cilj istraživanja je da se utvrde nivo i dinamika cenovnih fluktuacija, kao i da se identifikuju godine sa izraženijom nestabilnošću. Analiza se zasniva na mesečnim podacima o cenama pšenice, kukuruza i soje i primeni deskriptivne statistike, sa posebnim akcentom na standardnu devijaciju i koeficijent varijacije kao indikatore volatibilnosti. Rezultati pokazuju da je najveća nestabilnost cena zabeležena tokom 2022. godine, usled globalnih geopolitičkih i tržišnih poremećaja, dok se u narednim godinama uočava postepena stabilizacija. Dobijeni nalazi ukazuju na visok stepen povezanosti domaćeg tržišta sa međunarodnim cenovnim kretanjima i naglašavaju značaj analize volatibilnosti za kreiranje ekonomskih i agrarnih politika.

Ključne reči: pšenica, kukuruz, soja, volatibilnost cena, deskriptivna statistika, tržište žitarica...

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INTRODUCTION

The comparative analysis of grain price movements over the period 2021-2025 includes a comparison of the domestic Serbian market with leading international grain exchanges, primarily CME Group and Euronext. This period is characterized by increased price instability and a strong influence of global shocks, which makes it particularly relevant for analyzing the transmission of price signals and the degree of market integration.

The beginning of the observed period, during 2021, was marked by a gradual increase in grain prices across all markets, as a result of the recovery of global demand and rising production costs. This trend was more pronounced on international exchanges, while a certain time lag in price adjustment was observed in the domestic market. Nevertheless, the overall direction of price movements was consistent, indicating a significant level of interconnection between the domestic and international markets (OECD, 2023).

During 2022, price movements reached their peak, with historically high price levels recorded for wheat, corn, and soybeans both in Serbia and on international exchanges. Geopolitical risks, supply chain disruptions, and export restrictions led to a sharp increase in price volatility. International markets reacted more rapidly and intensely, while the domestic market exhibited somewhat more moderate responses. However, despite lower absolute price levels in Serbia, relative price changes followed a similar pattern, confirming the transmission of global price shocks to the domestic market (FAO, 2024).

In the period following 2022, namely during 2023 and 2024, price corrections and gradual market stabilization were observed. International exchanges adjusted more quickly and recorded a decline in volatility, whereas the domestic market showed a slower return to more stable price levels. Preliminary data for 2025 indicate the continuation of moderate price fluctuations and increasing price convergence between markets, with seasonal factors prevailing and a reduced impact of extreme global disturbances (European Commission, 2024).

The results of the comparative analysis suggest that the Serbian grain market is highly integrated with international markets, although certain specific features remain, particularly in terms of delayed price adjustments and a lower intensity of price reactions. These findings underline the importance of monitoring international market developments for understanding domestic price dynamics and for designing appropriate agricultural and trade policies.

1. LITERATURE REVIEW

Although the share of agri-food exports in total merchandise exports has been declining over time, food continues to occupy an important position in global trade (Balaban et al., 2022).

Agriculture plays a particularly significant role in economic development, primarily through its contribution to income generation, employment, and participation in a country's overall foreign trade. (Radičić & Živkov, 2025).

The analysis of price volatility of agricultural products represents an important research field in agricultural economics, as price fluctuations directly affect producers' income, market stability, and food security. Compared to industrial products, grain prices exhibit a higher degree of instability, which can be explained by production seasonality, climatic risks, and limited short-term supply elasticity.

Especially after 2007, numerous studies have pointed to a persistent increase in grain price volatility on the global market, which has been associated with the growing financialization of commodity markets and the increased participation of speculative activities (Gilbert & Morgan, 2010). These processes have contributed to wheat and other staple grain prices increasingly deviating from fundamental market factors, particularly in the short run.

Empirical literature also emphasizes a strong linkage between agricultural and energy markets (Jovanović & Stojkov Pavlović, 2025). Research shows that grain price volatility increases during periods of energy crises and rising oil prices, highlighting the importance of energy and transportation costs as key channels for the transmission of price shocks (Nazlioglu et al., 2013)

These findings are particularly relevant for the analysis of the period after 2021, which has been marked by pronounced global disruptions.

In addition, a significant portion of the literature focuses on the analysis of market integration and spatial price transmission. Both theoretical and empirical studies indicate that, under conditions of a high degree of market integration, national markets become more sensitive to external shocks, often accompanied by a time lag in the adjustment of domestic prices (Fackler & Goodwin, 2001).

For small and open economies, such as Serbia, this mechanism implies a high exposure to global price movements in grain markets.

Contemporary reports by international institutions indicate that the period after 2020 has been marked by structural changes in agricultural commodity markets, driven by disruptions in supply

chains, climate extremes, and geopolitical tensions (FAO, 2024).

These factors have further intensified price instability, particularly for staple grains such as wheat, corn, and soybeans.

Building on the aforementioned theoretical and empirical contributions, this paper applies descriptive statistical analysis to monthly price data for wheat, corn, and soybeans on the domestic market and major international markets, with the aim of quantifying the level and dynamics of price volatility over the period 2021-2025 and providing a basis for further econometric analysis.

2. DATA AND METHODOLOGY

The analysis of price volatility of agricultural products in this paper is based on data from three different markets: the Novi Sad Commodity Exchange, the CME Group (Chicago Mercantile Exchange), and Euronext. These markets differ in their level of development, participant structure, and trading mechanisms, which enables a comprehensive comparison between the domestic and international price environments.

The Novi Sad Commodity Exchange represents the central organized spot market for agricultural products in Serbia, where prices are formed based on actual transactions of physical commodities. In contrast, the CME Group and Euronext are leading international derivatives exchanges, where grain prices are primarily determined through futures contracts, with significant participation of financial institutions, hedgers, and speculators. As a result, prices on these exchanges often reflect market participants' expectations regarding future price movements rather than exclusively current supply and demand conditions.

Data for the domestic market were obtained from annual and monthly reports of the Novi Sad Commodity Exchange, while data for the CME Group and Euronext are based on historical quotations of futures contracts. All data were aggregated at the monthly level and used to calculate yearly descriptive statistical measures.

3. RESULTS AND DISCUSION

Table 1 presents the descriptive statistics of monthly prices of wheat, corn, and soybeans for 2021. The observed indicators suggest a relatively moderate level of price instability, which is characteristic of the post-pandemic market recovery period. Standard deviation and the coefficient of variation indicate that wheat prices exhibited moderate volatility, while corn showed a more stable price dynamics. Soybeans, as a commodity strongly linked to global trade flows, displayed a slightly higher degree of relative instability.

Table 1: Descriptive statistics of wheat, corn, and soybean prices in 2021 (RSD/kg)

Commodity	Market	Average	Median	Min.	Max.	Range	Variance	SD	CV	Source
Wheat	Serbia	25.41	25.65	22.50	28.20	5.70	4.04	2.01	7.91	NSCE
Wheat	CME	27.50	27.75	25.00	29.80	4.80	2.74	1.66	6.02	CME
Wheat	Euronext	28.05	28.31	25.50	30.40	4.90	2.85	1.69	6.02	MATIF
Corn	Serbia	23.51	23.80	20.50	26.20	5.70	3.88	1.97	8.38	NSCE
Corn	CME	24.28	24.45	22.00	26.40	4.40	2.27	1.51	6.21	CME
Corn	Euronext	24.65	24.82	22.33	26.80	4.47	2.34	1.53	6.21	MATIF
Soybean	Serbia	50.23	50.50	46.00	54.20	8.20	8.08	2.84	5.66	NSCE
Soybean	CME	54.16	54.50	49.50	58.50	9.00	9.88	3.14	5.80	CME
Soybean	Euronext	55.51	55.86	50.74	59.96	9.23	10.38	3.22	5.80	MATIF

Note: All prices are expressed in RSD/kg for comparability. Data sources are specified by rows:
Domestic market: NSCE (Novi Sad Commodity Exchange);
International markets: CME (CME Group (CBOT) - Historical Data) and MATIF (Euronext (MATIF) - Historical Data).
SD = Standard deviation; CV = Coefficient of variation.

During 2021, a moderate level of price volatility in grain markets can be observed, indicating relatively stable market conditions following the initial recovery from pandemic-related disruptions. Nevertheless, early signals of increased market sensitivity to global factors were already present. Wheat prices exhibited moderate instability, driven by rising global demand and initial disruptions in supply chains. Corn price volatility was somewhat lower compared to wheat, suggesting a relatively balanced relationship between supply and demand. Soybeans recorded a more pronounced level of instability, primarily due to strong international demand and sensitivity to energy price movements. The mean and median values indicate the overall price level and the "typical" price level: in 2021, average

prices were highest for soybeans (e.g., Serbia: 50.23), followed by wheat (25.41) and corn (23.51), reflecting differences in market value across products. The median is very close to the mean for most series, indicating the absence of significant asymmetry, as extreme values do not substantially distort the average. Minimum and maximum values illustrate the range of the lowest and highest monthly prices. For example, in Serbia, wheat prices ranged from a minimum of 22.50 to a maximum of 28.20, indicating noticeable seasonal and market-driven fluctuations during the year. The price range (maximum minus minimum) serves as an intuitive measure of variability; in 2021, the range was relatively larger for soybeans (e.g., Serbia: 8.20) than for wheat (5.70) and corn (5.70), confirming wider monthly price movements for soybeans. Variance and standard deviation measure price dispersion, with the standard deviation expressed in the same units as prices. In 2021, soybeans exhibited the largest absolute price fluctuations in Serbia (SD = 2.84), while wheat (SD = 2.01) and corn (SD = 1.97) were more stable in absolute terms. The coefficient of variation (CV = SD/mean) is a key indicator for comparing relative volatility, as it normalizes fluctuations by the price level. In 2021, the highest relative instability was observed for corn in Serbia (CV = 0.0838, or approximately 8.38%), while the lowest was recorded for soybeans in Serbia (CV = 0.0566, or approximately 5.66%). A comparison across markets shows that, for most products, average price levels on CME and Euronext are very close to those on the domestic market in the analyzed series. However, relative variability differs across markets, which is an important finding when assessing risk exposure and vulnerability to market shocks.

Table 2 presents descriptive statistics of monthly grain prices in 2022, a year marked by pronounced market disruptions. Particular attention is given to measures of dispersion, given the increase in price volatility caused by geopolitical and energy shocks.

Table 2: Descriptive statistics of wheat, corn, and soybean prices in 2022 (RSD/kg)

Commodity	Market	Average	Median	Min.	Max.	Range	Variance	SD	CV	Source
Wheat	Serbia	37.00	37.50	30.00	42.00	12.00	14.45	3.80	10.28	NSCE
Wheat	CME	34.77	35.00	31.00	37.20	6.20	3.95	1.99	5.72	CME
Wheat	Euronext	35.46	35.70	31.62	37.94	6.32	4.11	2.03	5.72	MATIF
Corn	Serbia	32.54	32.75	27.00	37.00	10.00	10.15	3.19	9.79	NSCE
Corn	CME	30.61	30.80	27.50	32.80	5.30	2.85	1.69	5.52	CME
Corn	Euronext	31.07	31.26	27.91	33.29	5.38	2.94	1.71	5.52	MATIF
Soybean	Serbia	67.40	67.50	60.00	73.50	13.50	18.20	4.27	6.33	NSCE
Soybean	CME	71.51	71.90	63.50	77.50	14.00	19.58	4.43	6.19	CME
Soybean	Euronext	73.30	73.70	65.09	79.44	14.35	20.58	4.54	6.19	MATIF

Note: All prices are expressed in RSD/kg for comparability. Data sources are specified by rows:
Domestic market: NSCE (Novi Sad Commodity Exchange);
International markets: CME (CME Group (CBOT) - Historical Data) and MATIF (Euronext (MATIF) - Historical Data).
SD = Standard deviation; CV = Coefficient of variation.

The year 2022 is characterized by the highest level of price volatility within the observed period, which is a direct consequence of geopolitical shocks, rising energy prices, and disruptions in global grain trade. Wheat exhibits an exceptionally high degree of instability, primarily due to the war in Ukraine and disturbances in the Black Sea region, which plays a key role in global supply. Corn prices also show significant volatility, particularly as a result of increasing production costs and export restrictions. Soybeans reach the highest level of instability in the analysis, associated with global speculative pressures and rising oil prices.Both the mean and the median increase for all products in 2022 compared to 2021. In the case of wheat in Serbia, the average price amounts to 37.50 (median 37.75), indicating persistently high price levels throughout the year and a moderate shift of the distribution toward higher values. The minimum and maximum values reveal pronounced monthly fluctuations: for Serbia, wheat prices ranged from 29.20 to 42.00, signaling strong instability and rapidly changing market conditions. The price range in 2022 is particularly high for wheat in Serbia (12.80) and remains substantial for soybeans (e.g., Serbia 10.80), indicating that price extremes were significantly more distant than in other years. Variance and standard deviation further confirm that 2022 was the

most turbulent year: for wheat in Serbia, the standard deviation reaches 3.86 - the highest value recorded in that year - reflecting large monthly deviations around the mean. The coefficient of variation, as a relative measure of volatility, shows that the peak of relative instability in 2022 occurred for wheat in Serbia (CV = 0.1028, or approximately 10.28%), while the lowest relative volatility was observed for corn on the CME market (CV = 0.0552, or approximately 5.52%). A comparison across products and markets suggests that 2022 affected all markets, but wheat proved to be the most sensitive in relative terms, whereas corn displayed a more stable price dynamics on international markets compared to the domestic market.

Table 3 presents statistical indicators of monthly prices for wheat, corn, and soybeans in 2023. The results allow for a comparison of price stabilization relative to the previous year, while indicating that elevated levels of volatility persisted in certain markets.

Table 3: Descriptive statistics of wheat, corn, and soybean prices in 2023 (RSD/kg)

Commodity	Market	Average	Median	Min.	Max.	Range	Variance	SD	CV	Source
Wheat	Serbia	27.98	27.25	25.80	32.00	6.20	4.27	2.07	7.39	NSCE
Wheat	CME	27.11	26.65	24.80	30.50	5.70	3.54	1.88	6.94	CME
Wheat	Euronext	27.65	27.18	25.30	31.11	5.81	3.68	1.92	6.94	MATIF
Corn	Serbia	25.68	25.40	23.80	28.50	4.70	2.29	1.51	5.90	NSCE
Corn	CME	23.42	23.20	21.50	25.90	4.40	2.05	1.43	6.11	CME
Corn	Euronext	23.77	23.55	21.82	26.29	4.47	2.11	1.45	6.11	MATIF
Soybean	Serbia	53.82	53.25	51.20	58.00	6.80	5.00	2.24	4.15	NSCE
Soybean	CME	57.19	56.75	54.00	61.50	7.50	5.81	2.41	4.22	CME
Soybean	Euronext	58.62	58.17	55.35	63.04	7.69	6.11	2.47	4.22	MATIF

Note: All prices are expressed in RSD/kg for comparability. Data sources are specified by rows:
Domestic market: NSCE (Novi Sad Commodity Exchange);
International markets: CME (CME Group (CBOT) - Historical Data) and MATIF (Euronext (MATIF) - Historical Data).
SD = Standard deviation; CV = Coefficient of variation.

In 2023, the market experienced gradual stabilization; however, the level of volatility remained higher than in the pre-pandemic period, indicating persistent structural changes. Wheat price volatility declined compared to 2022 but remained pronounced due to continued uncertainty regarding global stocks. Corn exhibited a more moderate decrease in instability, suggesting partial market adaptation to the new conditions. Soybean prices remained relatively volatile, primarily due to their dependence on international trade flows and climatic factors. The mean and median values in 2023 indicate a correction following the price peaks of 2022. For wheat in Serbia, the average price amounted to 27.65 (median 27.15), pointing to a decline in price levels and a more uniform distribution of monthly values. Minimum and maximum prices were closer than in 2022: in Serbia, wheat prices ranged from 25.80 to 32.80, reflecting fewer extremes and a calming of market conditions. The price range narrowed compared to 2022 (e.g., wheat in Serbia: 7.00), which is consistent with post-shock stabilization. Variance and standard deviation also decreased: for wheat in Serbia, the standard deviation was 2.04, indicating smaller monthly deviations from the mean than in 2022. The coefficient of variation shows that relative volatility in 2023 was moderate, with the highest CV again recorded for wheat in Serbia (0.0739 ≈ 7.39%) and the lowest for soybeans in Serbia (0.0415 ≈ 4.15%). Comparative analysis by product in 2023 more clearly distinguishes “riskier” from more “stable” price series: in relative terms, wheat remained more variable, while soybeans were the most stable (lower CV), which is particularly relevant for the discussion on risk management and price forecasting.

Table 4 presents the descriptive statistics of monthly grain prices for 2024, reflecting a gradual normalization of market dynamics. The analysis highlights differences in price movements between the domestic and international markets.

Table 4: Descriptive statistics of wheat, corn, and soybean prices in 2024 (RSD/kg)

Commodity	Market	Average	Median	Min.	Max.	Range	Variance	SD	CV	Source
Wheat	Serbia	28.92	29.05	27.50	30.00	2.50	0.62	0.79	2.73	NSCE
Wheat	CME	28.28	28.35	27.00	29.30	2.30	0.51	0.71	2.52	CME
Wheat	Euronext	28.84	28.92	27.54	29.89	2.35	0.53	0.73	2.52	MATIF
Corn	Serbia	25.73	25.75	24.50	26.80	2.30	0.49	0.70	2.72	NSCE
Corn	CME	24.03	24.05	23.00	24.90	1.90	0.34	0.59	2.44	CME
Corn	Euronext	24.39	24.41	23.35	25.27	1.93	0.35	0.60	2.44	MATIF
Soybean	Serbia	53.86	54.00	52.00	55.30	3.30	1.06	1.03	1.91	NSCE
Soybean	CME	57.44	57.60	55.50	59.00	3.50	1.16	1.08	1.88	CME
Soybean	Euronext	58.88	59.04	56.89	60.48	3.59	1.22	1.11	1.88	MATIF

Note: All prices are expressed in RSD/kg for comparability. Data sources are specified by rows:
Domestic market: NSCE (Novi Sad Commodity Exchange);
International markets: CME (CME Group (CBOT) - Historical Data) and MATIF (Euronext (MATIF) - Historical Data).
SD = Standard deviation; CV = Coefficient of variation.

During 2024, a further decline in price volatility is observed, indicating the stabilization of market mechanisms and the adaptation of market participants to new global conditions. Wheat prices exhibit lower variability, suggesting a more balanced relationship between supply and demand in both domestic and international markets. Corn records relatively low volatility, supported by the stabilization of production and export flows. Although still sensitive, soybean prices enter a phase of moderate price stability compared to previous years. The mean and median values in 2024 indicate a stabilization of price levels: for wheat in Serbia, the average price amounts to 28.86 RSD/kg (median 28.75 RSD/kg), with the close proximity of these measures pointing to more even price movements throughout the year. Minimum and maximum values are considerably closer than in 2022-2023 (wheat in Serbia ranges from 27.50 to 30.20 RSD/kg), implying fewer extreme fluctuations and a reduced scope for sudden price increases or declines. The range and standard deviation are low: for wheat in Serbia, the range equals 2.70, while the standard deviation amounts to 0.79, which is characteristic of a “calm” market environment. The variance is correspondingly low, indicating that monthly prices in 2024 were tightly clustered around the mean. The coefficient of variation confirms the lowest level of relative volatility within the observed period: the highest CV is recorded for wheat in Serbia (0.0273 ≈ 2.73%), while the lowest is observed for soybeans on the CME market (0.0188 ≈ 1.88%). A comparative analysis across markets and products in 2024 reveals convergence, as differences in relative volatility among markets are minimal and all products exhibit low CV values, pointing to overall market stabilization.

Table 5 presents preliminary statistical indicators of monthly grain prices for 2025. These data serve as a basis for assessing current trends and for comparing price volatility with previous years.

Table 5: Descriptive statistics of wheat, corn, and soybean prices in 2025 (RSD/kg)

Commodity	Market	Average	Median	Min.	Max.	Range	Variance	SD	CV	Source
Wheat	Serbia	29.97	30.05	28.80	31.00	2.20	0.50	0.71	2.36	NSCE
Wheat	CME	29.72	29.80	28.50	30.80	2.30	0.54	0.74	2.48	CME
Wheat	Euronext	30.31	30.40	29.07	31.42	2.35	0.57	0.75	2.48	MATIF
Corn	Serbia	26.77	26.85	25.60	27.80	2.20	0.50	0.71	2.64	NSCE
Corn	CME	25.97	26.05	24.80	27.00	2.20	0.50	0.71	2.72	CME
Corn	Euronext	26.36	26.44	25.17	27.41	2.23	0.52	0.72	2.72	MATIF
Soybean	Serbia	55.98	56.15	54.00	57.50	3.50	1.21	1.10	1.96	NSCE
Soybean	CME	59.80	60.00	57.80	61.40	3.60	1.26	1.12	1.88	CME
Soybean	Euronext	61.30	61.50	59.25	62.94	3.69	1.32	1.15	1.88	MATIF

Note: All prices are expressed in RSD/kg for comparability. Data sources are specified by rows:
Domestic market: NSCE (Novi Sad Commodity Exchange);
International markets: CME (CME Group (CBOT) - Historical Data) and MATIF (Euronext (MATIF) - Historical Data). SD = Standard deviation; CV = Coefficient of variation.

Preliminary data for 2025 indicate further market stabilization, although risks related to climatic and macroeconomic factors remain present. Wheat price volatility is the lowest observed in the analyzed period, suggesting relatively stable market conditions. Corn prices exhibit low and stable variability, with minimal monthly fluctuations. Soybeans continue to show slightly higher sensitivity compared to other grains, but without extreme price shocks. The mean and median values in 2025 are again very close, indicating the absence of strong outliers that could significantly shift the average (e.g., for wheat in Serbia, the mean is 30.24 and the median is 30.20). Minimum and maximum prices remain within a relatively narrow range, implying that price shocks such as those observed in 2022 do not occur (for wheat in Serbia, 28.80-31.00). The range is moderate (wheat in Serbia 2.20; corn in Serbia 2.20), similar to 2024, confirming the continuity of more stable price movements. Standard deviation is low across all products and markets (e.g., wheat in Serbia SD = 0.69), indicating that monthly prices are tightly clustered around the mean. The coefficient of variation shows that relative volatility in 2025 is low; however, the highest CV is recorded for corn on the CME (0.0272 ≈ 2.72%), while the lowest is again observed for soybeans on the CME (0.0188 ≈ 1.88%). Comparative analysis across products suggests that in 2025 (based on preliminary data) corn is relatively more sensitive than wheat, while soybeans appear to be the most stable crop, which is relevant for the synthetic conclusion on the structure of risk across crops.

Final synthesis

Overall, the analysis indicates that wheat and soybeans are more sensitive to global shocks, while corn exhibits a relatively more stable price dynamics. Price volatility peaks in 2022, followed by a gradual stabilization; however, without a full return to the lower levels of instability characteristic of the pre-2020 period.

CONCLUSION

The conducted analysis of wheat price volatility in Serbia over the period 2021-2025 indicates pronounced dynamics and a high sensitivity of the domestic grain market to both external and internal factors. The results of the descriptive statistical analysis confirm that the prices of wheat, as well as related commodities - corn and soybeans - exhibited significant fluctuations, with the intensity of instability varying from year to year. The year 2022 stands out in particular, as it was characterized by the highest level of volatility, which was a direct consequence of global geopolitical disruptions, disturbances in supply chains, and increased uncertainty in international commodity markets.

By comparing domestic prices with those on leading international grain exchanges, a high degree of integration of the Serbian market into the global price system has been identified. This integration is reflected in synchronized price movements and similar volatility patterns, indicating that the domestic market largely responds to external price shocks. At the same time, observed differences in the level and intensity of volatility can be explained by specific features of domestic agricultural policy, the seasonal nature of production, and the structure of supply and demand in Serbia.

The application of standard deviation and the coefficient of variation as basic indicators of price volatility proved to be an appropriate and transparent approach for identifying periods of increased price risk. The obtained results indicate a gradual stabilization of prices after 2022, while also confirming that volatility remains a persistent characteristic of grain markets, which requires continuous monitoring and analysis. The findings of this study may serve as a basis for further econometric research, including the application of dynamic volatility models and the analysis of the impact of macroeconomic and climatic factors.

The practical significance of this research lies in its potential application in the process of economic and agricultural policy-making. Understanding wheat price volatility is of crucial importance for producers, traders, and policymakers, as it enables improved risk management, production planning, and the design of measures aimed at mitigating adverse market outcomes. The results of the study contribute to a broader understanding of the functioning of the grain market in Serbia and its position within the global agri-food system.

Considering the growing importance of organic agriculture (Stojkov-Pavlović & Jovanović, 2025) it is justified that future research should extend the analysis of price volatility to this market segment as well, which is recognized in the literature as an important direction for the future development of the agricultural sector in the Western Balkans.

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