

UDC 339.13:633.1

Review paper

Received: September 17, 2021

Accepted: November 7, 2021

Corresponding author: aleksandra.gajdobranski@fppsp.edu.rs

BASIC INDICATORS OF ECONOMY IN THE DOMESTIC AND INTERNATIONAL MARKET

Aleksandra Gajdobranski

Faculty of Business Studies and Law, Union - Nikola Tesla University, Belgrade, Serbia

Vera Krmpot

Faculty of Business Studies and Law, Union - Nikola Tesla University, Belgrade, Serbia

Suzana Pajic

Faculty of Business Studies and Law, Union - Nikola Tesla University, Belgrade, Serbia

Abstract: *This paper is part of the analysis of the movements of prices, production, consumption, stocks of the most important types of cereals (wheat and corn) and oilseeds (soybeans and sunflowers) both on the domestic and international markets. The main goal of the research is to use scientific methods to look at the characteristics and tendencies in improving the productivity, economy and profitability of wheat, corn, soybeans and sunflowers, first within the domestic market and then follows the analysis with special reference to the international market. We covered a time period of 5 years (from 2017 to 2021), through primary and secondary data as basic indicators of business, which includes observation and comparative analysis of the most important cereals and oilseeds. In this regard, the emphasis is placed on the prices present at Euronext, the activities of commodity exchange participants, costs, as well as the international demand for these basic agri-food products in order to achieve a competitive advantage. Based on the comparative advantage detection index - RCA, we will determine the import / export in percentage terms as the net import / export of the given products in the total turnover value of that product. There is also a review of the so-called sector analysis of market research in order to identify basic opportunities and problems, both in production and in transport. In the paper, methodological procedures are presented through tables and graphs, data for the mentioned field crops are also presented, in order to examine and evaluate the final financial result.*

Key words: *indicators, field crops, domestic and international markets.*

INTRODUCTION

In the total economic value when it comes to the production of food of plant origin, a special place in the share belongs to crop and vegetable production. Wheat is in the first place and it is one of the cereals grown on agricultural land, which is among the largest of all other types of food, with the world trade in this cereal being higher than all other cereals combined (Curtis et al., 2002).. Together with wheat, we find corn grown globally, from cold Northern countries all the way to the tropic South.

Within the European Union, restrictions on subsidies and limits for oil production, based on the Blair Treaty (Blair House Memorandum of Understanding of Oilseeds or Blair House Agreement) of 1992, significantly influenced the European Union to be one of the most important oil import regions. European Union imports reached 30 million tonnes in 2002, with an equal share of oilseeds and oil cakes. It was pointed out that in 2003 the import quantities increased to 40 million / t. The validity of Blair's contract lasted until 2003 and was based on the following grounds (<https://ec.europa.eu/info/food-farming-fisheries>): to limit areas under oilseeds; to overcome the problems in international traffic between the USA and the EU; to allow permitted higher subsidies in the US and the EU; it was an important element of the final contract of the Uruguay Round for agriculture.

In order to be more competitive in the European Union market, we need to be more productive. Productivity as a socio-economic expression of the quality of business, is expressed by the ratio of average production and labor expended or the ratio of average working time (or total labor) spent on the production of the corresponding product (Gajdobranski et al., 2016). In addition to profitability, the basic economic principle of business is productivity and economy, which achieves economic efficiency in terms of costs and values. In order to achieve price competitiveness (gross prices paid by a foreign buyer are crucial), the complete price structure must be entered and analyzed: depreciation of production, workers' wages, material labor costs, overall consumption costs, development expenditures and other factors. It is necessary to correctly establish the exchange rate and the amount of export subsidies, to analyze both transport costs and import duties in the importing country. For a domestic currency that is undervalued, we say that it is a factor that stimulates exports, and vice versa, for a domestic currency that is overvalued, we say that it is a factor that stimulates imports.

Our agricultural producers cannot compete with their products on the foreign market, if they have less subsidies and less areas for incentives. Therefore, for example, regarding the joint project entitled "Strengthening the Grain Association and Export Activities in Serbia", the Food and Agriculture Organization of the United Nations (UN FAO) and the Association for the Advancement of Cereal Production and Exports "Grains of Serbia" have a Cooperation Agreement which concerns professional and financial support of the UN FAO for the development of this sector of agriculture and trade in Serbia. This Agreement envisages the development of sectoral analysis and market research, in order to identify both opportunities and shortcomings in production and trade, in order to successfully place products from Serbia on the European and world markets (<https://www.nirapress.com/spravoum-o-saradnji-un-fao-zita-srbije/>). Based on quantitative statistical calculations, we will

report the ranking of regions and countries in the international trade of these cereals and oilseeds.

1. RESEARCH METHODS AND DATA SOURCES

In the process of this scientific research, certain methods were used, such as: analysis, synthesis, induction, deduction, observation, counting, comparison, classification, as well as statistical methods. The research was conducted for the period from 2017 to 2021, with special reference to the quantitative statistical calculations of four field crops: wheat, corn, soybeans and sunflowers.

This paper uses the methodology according to Milosevic (1981), to investigate the dynamics of phenomena in a certain period of time, which, in addition to changes in absolute amounts, also determines changes in relative expression. This relative expression is obtained by relating each member of the time series to the size selected for the comparison base. The relative numbers formed in this way are called dynamics indices, which can be individual or group, and show the relations of different states of a phenomenon in the observed moments of time or time intervals in relation to the selected base. Depending on whether the same base is used in the calculation, ie. constant or variable base, two types of indexes were calculated: base and chain index, and their quotient is multiplied by 100.

In addition to scientific methods, in this paper we also use tables in which summary data for the most important regions of production and trade of cereals and oilseeds will be presented, which will be processed as the net export / import of a certain product in the total turnover value of that product. which will be processed with the help of the RCA (Revealed Comparative Advantage) indicator, which determines both imports and exports. It is in fact a ratio or proportion (expressed as a percentage) as the net export or net import of a given product in the total turnover of that product, which can be represented as follows:

$$RCA = (X_i - M_i) : (X_i + M_i)$$

X_i = export of product and

M_i = import of product.

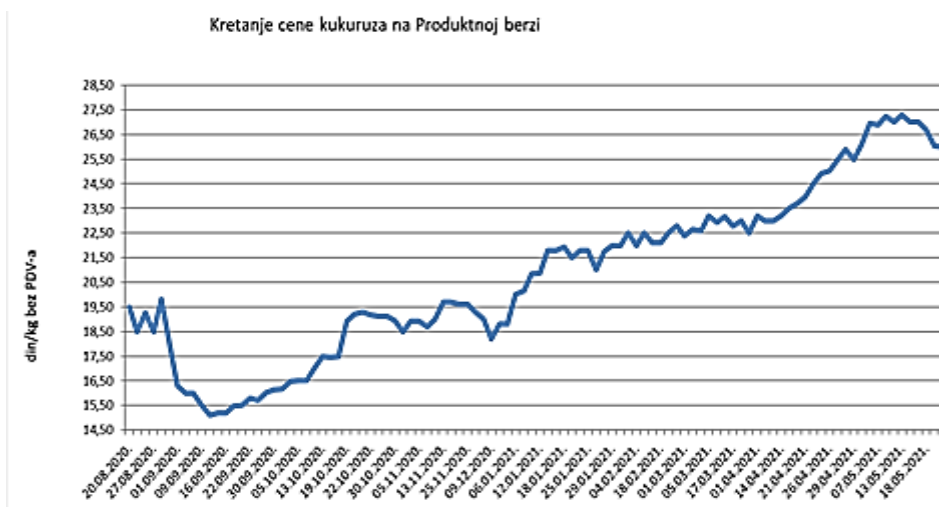
A value of 100 indicates that the analyzed country is the absolute exporter of that product. On the other hand, a value less than 100 implies that the country is the absolute importer of that product. Intermediate values indicate that the country in question had both imports and exports of the analyzed product, and zero values suggest the possibility that import volumes and export volumes are in balance. Values above zero 0 suggest that the country has comparative advantages in the production and export of the product concerned.

The main sources of data used in this research work are statistical yearbooks of Serbia from 2017 to 2021, published data of the business association "Zita Srbije", research by authors published in studies on the competitiveness of Serbian agriculture, scientific books, journals and other publications. Of the foreign statistical sources, the most used are internet databases such as: UN FAO, EUROSTAT, USDA and foreign trade statistics.

2. INFLUENCE OF PRICES OF BASIC FIELD CROPS ON ECONOMIC ACTIVITY

Just like the markets for many other agricultural products, the global financial crisis caused by the pandemic has seriously affected farmers, through lower liquidity and lower increases in financing costs. At the Novi Sad Product Exchange at the end of April 2020, there was a significant drop in turnover. In foreign markets, prices for all goods fell, in the context of the difficult situation for economic indicators, which is a consequence of the health crisis affected by the covid-19 pandemic and the restrictions on the movement of half of the world's population. A total of 550 tons of goods were traded through the Product Exchange, whose financial value was around 11 million/RSD. Volume turnover decreased by 77.08%, and financial turnover decreased by 76.23% (<http://www.agroservis.rs/komentar-nedeljnog-prometa-roba-na-produktnoj-berzi-u-novom-sadu-397>). After a year of pandemic, at the end of May 2021, due to further reduced activity of commodity exchange participants and falling prices of primary agricultural products (corn, soybeans and wheat), the total turnover through the Product Exchange amounted to 2.5 thousand/t of goods, whose financial value was around 77 mil/rsd. Future demand for soybean grain in 2021 at the parity of FCA Vojvodina with the delivery of goods in the harvest, ranged in a wide price range from 486 €/t to 505 €/t in dinar equivalent on the day of payment at the middle exchange rate of the NBS. During this period, the soybean market was calmer, but the purchase agreement was not realized.

Developments on the international market, the influence of world trends and prices in the world, as well as internal factors on the domestic market have led to the fact that corn grain has a negative price trend. At the end of May 2021, stock exchange contracts were concluded in the price range from 26 dinars/kg to 27 dinars/kg without VAT, with a pronounced tendency for prices to fall. In that period, the weighted price was 26.40 din/kg without VAT, where compared to the same period last year, the price is higher by 62.50%. Graph 1 shows the movement of corn prices on the Product Exchange from 20.08.2020 to 18.05.2021.



Graph 1. Movement of corn prices on the Product Exchange 2020/2021 (Source: <https://www.proberza.co.rs/21-05-2021/>)

At the beginning of October 2021, the demand of commodity exchange participants for the purchase of corn was more pronounced. Stock exchange contracts are concluded in the price range from 25 dinars/kg to 26.20 dinars/kg without VAT. The weighted price was 25.85 dinars/kg without VAT, which is an increase of 2.19% compared to the previous comparative figure. Corn prices on the foreign market remain largely supported by short-term shortages of goods in Western Europe and the Black Sea basin.

Wheat also had a downward price trend at Euronext at the end of May 2021. The absence of export demand and a good supply of domestic processors have led to passivity in the domestic market. Stock exchange contracts were realized in the price range from 23.20 dinars/kg to 24 dinars/kg without VAT. The weight price was 23.27 dinars/kg without VAT, which is a decrease of 1.39%. In anticipation of the wheat harvest in 2021, there was more interest in futures trading. Demand was at a price level of 170 €/t to 175 €/t at the FCA Vojvodina parity, while supply was at a higher price level of 180 €/t. Graph 2 shows the movement of wheat prices on the Product Exchange from 01.07.2020. to 20.05.2021.



Graph 2. Movement of wheat prices on the Product Exchange 2020/2021 (Source: <https://www.proberza.co.rs/20-05-2021/>)

However, at the beginning of October 2021, wheat reached its price maximum in the current economic year. The price of 28.50 din/kg without VAT, at FCA parity, is registered as the highest price achieved since the beginning of the harvest. Such a high price level was last recorded in August 2012. Weak supply observed in September 2021, led to more intensive demand for this cereal and an upward trend of 6.68%. Wheat had oscillations with strong prices in Chicago due to the growth of Black Sea and European prices due to strong international demand, which was also reflected in the domestic grain market. Euronext prices for the contract for wheat with December arrival set a new record.

The movement of prices of corn, wheat and soybeans on the world market on May 20, 2021 is also shown in Table 1.

Table 1. Movement of prices of corn, wheat and soybeans on the world market in 2021, (Source: www.agroservis.r)

RSD/kg	Kukuruz	Pšenica	Soja
20.05.2021. produktna berza novi sad	26,00 (20.05.)	24,00 _(12.05.) →	85,50 (12.05.) →
		24,00 _(27.06.) → Mlinarica 11% proteina	
		23,50 _(20.05.) ↑ Mlinarica 11% proteina	
		23,60 _(12.05.) → Mlinarica 11% proteina	
Čikago	25,13 ↑	23,84 ↓	54,13 ↓
Mineapolis	25,77 ↑	21,40 ↓	53,78 ↓
Pariz	29,75 ↑	25,13 ↑	-

In the European market, the price of oilseeds remains subject to correction due to the recent easing of soybean, canola and palm oil prices. Based on the report of "Zito Srbije", in October 2021, there was a growing trend in the price of soybeans. Purchase contracts were concluded in the price range from 76.00 to 77.00 dinars/kg without VAT, and traded exclusively with the calculation of quality. The average trading price was 76.63 dinars/kg without VAT, which is an increase of 0.94%. In the same period, sunflower was traded at a price of 59.50 dinars/kg to 59.70 dinars/kg without VAT. Weak supply of this oilseed is noticeable, which led to a price increase of 0.22%. The new rise in oil prices in Europe, spurred by the rise in palm oil prices and the energy market, is strengthening the growth of the oilseed market.

3. INDICATORS OF PRODUCTION, CONSUMPTION AND STOCKS OF BASIC FIELD CROPS

Indicators of wheat, corn, soybean and sunflower production, as one of the most important field crops, indicate the production of food without genetically modified products, with the existence of quality arable land at about 4.2 million/ha. It would be ecologically clean food for which there are potentials in our country (such as non-contamination of soil, water and air). In the structure of the created value of agricultural production, about 58% in our country comes from crop production, while in the European Union this share is about 30% (Gajdobranski, 2015). In relation to the market environment (such as CEFTA and EU countries), our agricultural producers have significantly less state support in the production of cereals and oilseeds, where their profit or loss is expressed primarily as a result of realized prices. As a result, our agricultural producers are left to the banking sector, without subsidizing interest rates and minimizing direct payments from the budget. This leads to reduced profitability, which depends on the economics of production (with how much it costs to produce a certain amount of product, where the emphasis is on minimizing costs) and market performance (which is achieved through market prices) (Gajdobranski, 2020).

The Food and Agriculture Organization of the United Nations (UN FAO) in cooperation with the European Bank for Reconstruction and Development (EBRD) and the Association for the Promotion of Production and Export of Cereals and Oilseeds "Zita Srbije" signed in 2021 the continuation of the Cooperation Agreement within the joint project entitled "Guidelines for the operation of silos in the conditions of the COVID-19 pandemic". Within this project, last 2020, the development, promotion and distribution of Guidelines for the operation of silos in the COVID-19 pandemic was realized with their presentation, production of accompanying video material, as well as training in the best conditions allowed by the global pandemic situation after harvest wheat and corn in 2020. UN FAO is important not only for the members of the Association, but for our entire grain sector - from production, storage

and logistics to exports. The UN FAO provided significant support and assistance in opening new markets for our cereals, especially the largest ones such as Egypt and China (Zita Srbije, monthly report 3.21 / Belgrade, May 2021 /). The engagement of the UN FAO in Serbia is very important bearing in mind that the world is increasingly looking for quality products, that competition in the production of cereals and oilseeds in the world is increasing and that only quality products can find their way to the end consumer. In our country, on the demand side, more activities were shown by domestic processors and exporters to the countries of the region and Italy.

Indicators of crop production in the world since the onset of the crisis caused by covid-19, indicate that in the United States 2020 sown about 42% of the total planned area for spring wheat sowing, which is still less than the five-year average progress of spring sowing (63%) due to excess soil moisture and low temperatures that make agricultural work difficult. U.S. farmers have sown corn on 67% of the total area planned for corn sowing, 12% ahead of the five-year average of corn sowing progress. World production, consumption and stocks of wheat and corn in mil / t are shown in Table 1. (<https://www.zitasrbije-kotacije20.20.pdf>).

Table 1. World production, consumption and stocks of wheat and corn (2017-2021 in mil / t) (**Source:** <https://www.zitasrbije-kotacije20.20.pdf>)

Wheat	Starting stock	Production	Consumption	Export	Ending stock
2017/2018	263	763	742	182	284
2018/2019	284	731	735	174	279
2019/2020	279	764	749	183	295
2020/2021 maj	295	768	753	188	310
Corn	Starting stock	Production	Consumption	Export	Ending stock
2017/2018	352	1.080	1.090	148	342
2018/2019	341	1.123	1.144	181	321
2019/2020	321	1.115	1.121	169	315
2020/2021 maj	315	1.187	1.162	182	340

Soya	Starting stock	Production	Consumption	Export	Ending stock
2017/2018	95	342	338	153	99
2018/2019	99	360	343	148	113
2019/2020	113	336	348	154	100
2020/2021 May	100	363	361	162	98

Imports and exports of wheat, corn and soybeans regarding the observed period (2017-2021) in our country we will calculate by using the following indicators: comparative advantage index (RCA), where values higher than zero suggest that comparative export advantages have been achieved in certain years. and conversely, values less than zero suggest that comparative export deficits have been achieved in certain years. Table 2 shows the balance in exports-imports, which can be either positive, negative or zero, as well as the index of comparative advantages, which we calculate using the following formula:

$$RCA = (X_i - M_i) : (X_i + M_i), \text{ whereas}$$

X_i = export of product and M_i = import of product

Table 2. Import-export of wheat and corn on the domestic market (2017-2021 in thous / t), (Source: <https://www.zitasrbije.rs/download/>)

Wheat				
Year	Import	Export	Saldo	RCA (%)
2017	1,4	511	510	99
2018	1,5	1.202	1.200	99
2019	1,7	319	317	99
2020	3,0	590	587	99
Corn				
Year	Import	Export	Saldo	RCA (%)
2017	8,0	1.728	1.720	99
2018	19,0	1.311	1.292	99
2019	7,1	3.118	3.111	99
2020	6,2	3.638	3.631	100

Soybeans				
Year	Import	Export	Saldo	RCA (%)
2017	151,8	115,0	-37	-14
2018	19,8	70,1	50	56
2019	4,2	182,3	178	95
2020	199,0	250,0	51	11

Regarding the import and export of corn in the analyzed years, the largest export was realized in 2020, with the index of detection of comparative advantages (RCA) at 100%, which represents a positive balance in exports, and indicates that absolute exports of this grain were achieved. The lowest export of corn was realized in 2018 and was three times lower than the export in 2020, where the index of disclosure of comparative advantages (RCA) was 99%, which represents a positive balance in exports.

Regarding the import and export of soybeans in the observed years, the largest exports were realized in 2020 whose index of disclosure of comparative advantages (RCA) was 11%, which represents a positive balance in exports. The lowest soybean exports were realized in 2018, where the comparative advantage detection index (RCA) was 56%, which is a positive balance in exports. The negative balance in soybean exports was realized in 2017, when the comparative advantage detection index (RCA) was -14%.

Based on the presented data, it is noticeable that for wheat and corn in the analyzed years there was a surplus in exports of as much as 99%, while soybeans have variations. In 2017, soybeans had an export deficit of -14%, while the export surplus was realized in 2018, 2019, and 2020, and the largest surplus was realized in 2019 in the amount of 95%.

Within crop production, a special place in terms of share in the total value belongs to the production of wheat, corn, soybeans and sunflowers. Developments in the international market of agricultural products have influenced the sowing structure in Serbia to change significantly in the last few years. Observing the total sown areas, there are no significant variations under cereals and they amount to 1.9 mil / ha, but on the other hand there was an increase in the share of corn and a decrease in the area under wheat in the total share. Due to the growth of grain prices on the world market, producers are reorienting to the production of corn, whose sown areas have increased by about 10% in recent years, while areas under wheat fell

to below 500 thousand / ha for the first time in the last decade. (Agriculture and Rural Development Strategy of the Republic of Serbia for the period 2014-2024).

CONCLUSION

In the further Report on World Agricultural Supply and Demand, the US Department of Agriculture expects the following in the economic year 2021/2022: 1) Higher annual wheat production in the world, due to the expected increased production in the EU, USA, Ukraine and Great Britain; higher consumption and exports are expected, as a result of which the first estimate of the final stocks of wheat for the economic 2021/2022 is at the same level as a year earlier. 2) Record production of corn in the world at the level of 1,189 mil / t, compared to 1,128 mil / t produced in the previous year, due to the expected increase in corn production in the USA, Brazil, Argentina, Ukraine and China; Consumption of corn is expected to be 3% higher on an annual level, and the final stocks of corn in the world for the economic year 2021/2022 are at the level of 292 mil / t, which is a stock of 8.7 mil / t higher than in 2020/2021 3) Smaller initial stocks of soybeans in the world on an annual level, but production higher by over 20 mil / t compared to a year earlier with an adequate increase in soybean consumption in the world and closing stocks for the economic year 2021/2022 by almost 5 mil / t higher annually.

According to the data of "Zita Srbije", in the analyzed years it is estimated that the largest export was realized in corn on average of 2,449 thousand/t, followed by wheat with an average export of 655 thousand/t, and in third place is soybean with an average export of 154 thousand/t. The largest positive foreign trade balance was realized in maize, where the index of discovery of comparative advantages (RCA) in 2020 amounted to 100 index points. Serbia is among the world's largest exporters of corn, which, like other cereals and oilseeds, is a commodity, which means that its price is formed on world stock exchanges. It has been proven that at the beginning of October 2021, the demand of commodity-exchange participants for the purchase of corn was more pronounced, where stock exchange contracts were concluded in the price range from 25 dinars/kg to 26.20 dinars/kg without VAT. The weighted price of corn was 25.85 dinars/kg without VAT, which is an increase of 2.19%. Unlike corn, wheat had a downward trend in prices at Euronext at the end of May 2021, due to the supply of domestic processors, where stock exchange contracts were realized in the price range from 23.20 dinars/kg to 24 dinars/kg without VAT. . The weighted price of wheat was 23.27 dinars/kg without VAT, which is a decrease of 1.39%. Regardless of the oscillations present, wheat and corn, as two basic cereals, have been contributing to a positive foreign trade balance for years, both in value and quantity.

In addition to the positive balance in exports of corn, wheat and a good part of soybeans, the competitiveness of our agricultural products in foreign markets is still

low, and it is reflected in high production costs and low purchase prices, low productivity, outdated technology and low quality that does not comply with the standards prescribed by the European Union. Problems are also reflected in the insufficient agricultural budget and subsidies, the unresolved financing and investment system, the insufficiently developed advisory service, the lack of a unified information system and a number of other accompanying problems. All of the above threatens growth and development not only in this sector of agriculture but also in the entire sector of the economy.

REFERENCES:

1. Curtis, Rajaraman, MacPherson (2002). Bread Wheat. Food and Agriculture Organization of the United Nations, Rome 2002
2. Gajdobranski A. (2015). Analiza faktora konkurentnosti proizvodnje i izvoza uljarica Srbije - Monografija. FPSP i FSOM Univerziteta UNION "Nikola Tesla" Beograd, str. 33
3. Gajdobranski A., i grupa autora (2016). Komparativna analiza proizvodnje uljarica i jestivih ulja u svetu, Evropskoj uniji i Srbiji - Monografija. FPSP i FSOM Univerziteta UNION "Nikola Tesla" Beograd, str. 55
4. Gajdobranski A. (2020). Obracunske kalkulacije u ratarskoj proizvodnji kod malih i srednjih gazdinstava na podrucju AP Vojvodine – Monografija. FPSP i FITI Univerziteta UNION "Nikola Tesla" Beograd, str. 74-75
5. Ministarstvo poljoprivrede i zastite životne sredine (2017). Nacionalni program poljoprivrede Srbije
6. Prvi poslovni list poljoprivrednika i savetodavaca–Gazdinstvo (2018). Ucesce poljoprivrede u bruto proizvodnju, Novi Sad, br. 127/II, str. 16-17
7. Poslovno udruženje "Zita Srbije" (2021). Mesecni izvestaj 3.21/Beograd, maj 2021/
8. Republiki zavod za statistiku, Statistika spoljne trgovine od 2016. do 2020. godine, Beograd
9. Republiki zavod za statistiku, Statisticki godisnjaci Srbije od 2015. do 2020. godine, Beograd
10. Strategija poljoprivrede i ruralnog razvoja Republike Srbije za period 2014-2024. godine, "Sl. glasnik RS", br. 85/2016, Beograd
11. USDA (United States Statistical Date) od 2016. do 2020. godine
12. <https://ec.europa.eu/info/food-farming-fisheries>
13. <https://www.nirapress.com/sporazum-o-saradnji-un-fao-zita-srbije/>

14. <http://www.ef.uns.ac.rs/predmeti/oas/statistika/2020-01-10-vrs-vremenske-serije.pdf>
15. <https://www.zitasrbije.rs/download/UTICAJ%20PANDEMIJE%20COVID%2019%20NA%20%c5%bdITARSKI%20SEKTOR%20U%20SRBIJI.pdf>
16. <https://www.proberza.co.rs/20-05-2021/>
17. <https://www.zitasrbije-kotacije20.20.pdf>
18. <http://www.fao.org>
19. <http://www.eurostat>
20. <http://www.mpzss.gov.rs/>