Slobodan Popovic[1], Jelena Toskovic[2], Ivica Nikolic[3]

OIL PRODUCTION AS A POTENTIAL FACTOR OF ECONOMIC DEVELOPMENT OF THE REPUBLIC OF SERBIA

The paper presents an overview of an industry that can have a development capacity in Serbian economy. The observation in this study includes forecasts for the period 2014–2024, primarily for agriculture. The authors have chosen to provide the fundamentals of agricultural factors, because they form the basis for food industry development. Namely, there is an interdependence of primary production of oil and food industry development. The main conclusion is that the quality of raw materials produced in Serbia and a promising market create good opportunities for better use of the existing capacity, basically in the processing industry at the national level.
Keywords: *production of sunflower oil; Serbia; agriculture.*

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ВИРОБНИЦТВО ОЛІЇ ЯК ПОТЕНЦІЙНИЙ ФАКТОР ЕКОНОМІЧНОГО РОЗВИТКУ РЕСПУБЛІКИ СЕРБІЯ

У статті наведено характеристику галузі, яка потенційно може надати суттєвий поштовх економічному розвитку Сербії, а також представлено прогноз розвитку сільського господарства Республіки Сербія на 2014–2024 роки. Описані сільськогосподарські фактори є основою для розвитку харчової галузі економіки. Зокрема, стійкий взаємозв'язок спостерігається між первинним виробництвом соняшникової олії та розвитком всієї харчової галузі. Якість сировини, що виробляється у Сербії, і перспективи розвитку даного ринку формують значні можливості для виведення всієї обробної промисловості на рівень національної важливості.
Ключові слова: *виробництво соняшникової олії; Сербія; сільське господарство.*
Рис. 4. Табл. 5. Літ. 16.

Слободан Попович, Елена Тошкович, Ивица Николич

ПРОИЗВОДСТВО МАСЛА КАК ПОТЕНЦИАЛЬНЫЙ ФАКТОР ЭКОНОМИЧЕСКОГО РАЗВИТИЯ РЕСПУБЛИКИ СЕРБИЯ

В статье дана характеристика отрасли, которая потенциально может придать существенный толчок экономическому развитию Сербии, а также представлен прогноз развития всего сельского хозяйства Республики Сербии на 2014–2024 годы. Описанные сельскохозяйственные факторы являются основой для развития пищевой отрасли экономики. В частности, устойчивая взаимосвязь наблюдается между первичным производством подсолнечного масла и развитием всей пищевой отрасли. Качество сырья, производимого в Сербии, и перспективы развития данного рынка формируют значительные возможности для вывода всей обрабатывающей промышленности на уровень национальной важности.
Ключевые слова: *производство подсолнечного масла; Сербия; сельское хозяйство.*

Introduction. Contemporary society and economy, as well as the existing companies are in the process of continuous transition and transformation. Social processes, particularly in the last decade have affected companies, demanding their quick reaction and adaptation to new conditions of life and work. In addition, business is conducted under growing uncertainty. The expansion of the financial crisis from the United States to Europe could not be bypassed, even in the South-Eastern Balkans,

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including Serbia. We can see the expressive problems in Serbia, especially after the 1990s. The situation has the features of late transition, war economy, political and economic isolation, hyperinflation, falling production, rising unemployment, political turbulence, corruption growth, crime in all spheres of society etc.

Since 2000, the territory of Serbia has been in constant transition and transformation, and the period of development of Serbian economy could be described as the continuous process of crisis development. In the last period, in economic terms, failed privatization model has been identified. Public sector and public utilities in particular are awaiting for transformation process, announced 14 years ago. Job loss in the industrial sector of Serbia is possible to solve partially with the employment of manpower in the agroindustrial sector. In this paper, this sector is represented by the oilseeds production or raw materials processing in oilseeds manufacturing in Serbia.

It is necessary to consider oil production as an industry in the context of the overall situation in the economy. Therefore, all those involved in macroeconomic decision-making, should take into account the entire set of circumstances in which economic activities are conducted (socioeconomic conditions, economic environment), which may impact the production (Curovic, 2014). Impacts on oil production as the industry can be twofold, i.e. climatic conditions and agricultural policy. When climatic conditions are concerned, it should be taken into account, that agricultural production is specific in terms of land as a limited resource and that the climatic factor is also a big limitation on which one can have only partial impact (seeding structure, irrigation etc.). Agricultural policy is of great importance for the development of oilseed production. Often, the impact of agricultural policies is equal to the impact of climatic conditions (Curovic, 2014).

The goal of the entire food industry of the Republic of Serbia should be reaching a higher processing level in agricultural production. That would mean that approximately 50% of production is for the domestic market and the rest should be exported. Thus, this activity can undoubtedly have a positive impact on the GDP growth.

Literature review. Start of transition in Serbia in 2001 was without apparent vision of further economic development. Given estimates are that if there was a constant increase in production annually by 10% since 2000 for 21 years it would return Serbia to 1989, still with 550 bln USD lost. If the growth was 8%, then it would take another 9 years, and future damage would be 1150 bln USD (Economic Policy in 2000). In addition, there was an increase in import dependence, without tradable product and services and with extreme non-competitive structure of the economy as a whole (Drakulic, 2013).

In such conditions, it is necessary to observe oil production as the economic sector in the context of overall economic situation. Macroeconomic decision-making has to take into account the overall situation in which the country's economy operates. Furthermore, socioeconomic conditions, economic environment, and other relevant characteristics could have a major impact on oilseeds production (Curovic, 2014). In transition countries like Serbia investors are not interested in setting up production, instead they are interested in distributing products from other countries. Thus, the limits are in credible economic and political institutions (Backovic, 2013).

Material and methods. The authors have analysed the production of sunflower edible oil, taking into account the impact of macroeconomic and other inputs in Serbia.

In the analysis, we used publicly available data obtained from the Ministry of Agriculture, National Bank of the Republic of Serbia and the released agricultural development strategy for the period 2014–2024. Also, we used 2014 Industrial Plant Business Community data. The data were processed and presented to show the effects on oil production and food industry as a basis for the processing of primary raw oilseeds and adding greater value to the economy of the country. The aim of the research on macroeconomic factors in oil production of Serbia is to highlight the opportunities for development. Oil production should be seen as an activity in which there are opportunities for the development from crop production to processing.

The activity is measurable by its effects on exports, while inactivity and omissions can be measured by import of products. The contribution of this and similar studies is measurable in terms of correcting views on growing industrial sunflower and other oilseeds, especially in the context of the importance of their processing into final products. The contribution of this study concercus the on shift to a higher processing level in the food industry of Serbia, and not selling agricultural products in their raw materials to other countries.

The form subject of this paper is oil production in the Republic of Serbia, the production of primary agricultural oilseed crops and processing to a higher level of primary production finalization. The purpose is to give a fuller picture of the oil industry in the Republic of Serbia, its position in a broader context, first of all, among the countries of the southeastern Balkans.

State regulated framework, strategic guidelines and policies based on the EU accession by Serbia. Development objectives and priorities for agriculture should be in accordance with the principles of sustainable development and the new role of this sector. Further development should include a variety of Serbian rural areas and large regional differences in production systems.

This best can be seen in the organization of agricultural production in Vojvodina, in the plain part, and in comparison to organization of production in the highlands of Central Serbia. The analysis of these two organizations system of agriculture showed that there is a huge difference and completely different approaches to agricultural production. Therefore, developed agricultural strategies must also offer solutions for a fairer and more equal distribution of budget funds to all potential users.

For the widest framework of government operations to make sense, the agriculture strategy should define:

1) directions for future development of agriculture;

2) support model that would lead to accelerated development of the agrifood sector;

3) directions for future reforms in agricultural policy.

In the future the Republic of Serbia shall enter the phase of European integration, complying the adopted strategy of the Republic of Serbia with European model of agriculture.

The impact of macroeconomic factors on the oil production in Serbia. The aim of the research is essentially to show the influence of several macroeconomic factors on agriculture in Serbia. The impact of the majority of macroeconomic factors on oil production is great. In addition, it also indicates the opportunities and points for pos-

sible development. Oil production should be viewed as an activity where there are chances for development.

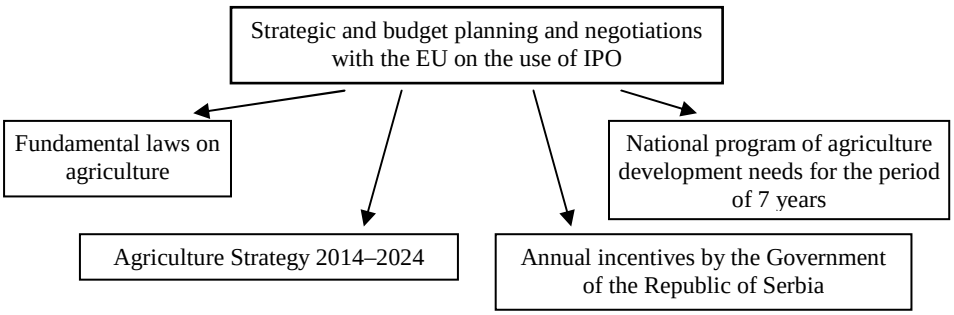

Figure 1. **The broadest framework of agriculture organization in Serbia complied with the EU in the long term,** *authors'*

Serbia has already built capacities, for beyond the needs of the domestic market. Serbia is one of the largest producers of oilseeds in the region of Western Balkans. It is also the area with the largest processing capacities which are connected to the raw material base of primary agricultural production. The capacities of oil industry enable the maximum annual processing of approximately 900,000 tons of sunflower, 500,000 tons of soybeans and 250,000 tons of rapeseed. The average level of sunflower processing in the last 10 years in Serbia was at the level of only 40% of the available capacities, and for soybeans – 70%. The tradition in processing lasts for several centuries, especially in northern part of Serbia. In recent years in professional literature, great attention is paid to the sustainable development concept. Sustainable development should be viewed with full consideration of environmental friendly activities (Danea et al., 2013; Popovic et al., 2014; Boanca et al., 2014). In addition, economic costs and the price of environmental protection must be taken into account in all market economies (Radosavljevic et al., 2014). The impact of most macroeconomic indicators in this paper, which can significantly affect the condition of the entire Serbian economy is dtudied using the statistical methods, see Table 1.

Table 1. **Macroeconomic indicators for Serbia, 2004–2012,** *authors' calculations*

Indicators	The observation								
	2004	2005	2006	2007	2008	2009	2010	2011	2012
Real GDP growth, %	9.3	5.4	3.6	5.4	3.8	-3.5	1.0	1.6	-1.5
Consumer prices, %	13.7	17.7	6.6	11.0	8.6	6.6	10.3	7.0	12.2
Unemployment, %	18.5	20.8	20.9	18.1	13.6	16.1	19.2	23	22.4
Current account balance, % of GDP	-13.8	-8.8	-10.1	-17.7	-21.6	-6.6	-6.7	-9.2	-8.3
Budget deficit, %	-0.3	0.3	-1.9	-1.7	-1.7	-3.4	-3.7	-4.2	-5.0
Public debt, %	55.3	52.2	37.7	31.5	29.2	34.7	44.5	48.7	59.2
External Debt, %	49.8	60.1	60.9	60.2	64.6	77.7	84.9	77.5	85.6

In addition to the indicators that represent the position of Serbia, the authors cinsidered the progress indicators and the competitiveness of other countries starting from the times of the Great Depression (2008–2010). The countries bordering with

Serbia are considered, among which Croatia and Hungary became members of the EU and all other countries were previously member states of Yugoslavia, except Albania.

Table 2. **Analysis of progress in competitiveness (selected countries)**

	Index value			Absolute growth		Relative growth	
	2008	2009	2010	2010/2009	2010/2008	2010/2009	2010/2008
Hungary (EU)	4.22	4.22	4.33	0.11	0.11	2.6%	2.6%
Croatia (EU)	4.22	4.03	4.04	0.01	-0.18	0.2%	-4.3%
Serbia	3.90	3.77	3.84	0.07	-0.06	1.9%	-1.5%
Montenegro	4.11	4.16	4.36	0.20	0.25	4.8%	6.1%
Bosnia and Herzegovina	3.56	3.53	3.70	0.17	0.14	4.8%	3.9%
Macedonia	3.87	3.95	4.02	0.07	0.15	1.8%	3.9%
Albania	3.55	3.72	3.94	0.22	0.39	5.9%	11.0%

Source: World Economic Forum (2010).

Based on the data in Table 2, the starting position of Serbia is slightly worse in relation to the EU countries given in Table 2, as well as in relation to Montenegro, while Serbia is above other former republics of Yugoslavia, and in a better position than Albania. Globalization and liberalization as a European phenomenon, with the financial crisis transferred from the US to Europe, directly affected even small countries like Serbia. In addition, Serbia is exhausted by enormous internal problems, so the impact of major economies on it is huge. This finding is striking, domestic production which has been created for decades is degrading since 2000 (Curovic, 2014).

Some authors point out that the value created for customers is responsible for resource consumption and overall efficiency of a company (Novicevic, 2009). In all the EU countries and the countries joining the EU, standardization and harmonization is needed. And particularly the standardization of financial reporting, which occurs as continuous process (Skaric Jovanovic, 2013). Reporting should be viewed in the context of activities or industries. The interest of the state is reflected in the creation of favorable environment where all economic activities operate smoothly. This directly affects the stability of the economy in the country. We should also point out that the achievement of stability will lead to price stability in the country. In addition to price stability in the broadest context, parity prices for agricultural crops and industrial crops is important. In this paper, the emphasis is placed on industrial plants, because they are the basis for the next phase of treatment, or the food industry that creates higher income and greater value for the public. Future activities are related to Serbia starting the process of integration of Serbia into the European Union and the World Trade Organization. In order to ensure stable and long-term possible benefits for domestic producers, the general activity should include European model of support, with full respect of national conditions and priorities.

The new concept of agricultural policy. The new state approach to agriculture should take into account:

- the need to reduce the lag in technological development from competitive countries to enable more efficient agricultural sector coping with the effects of global climate change;

- the need to increase the efficiency of the food chain and the competitiveness of the agri-food sector;
- providing stable incomes and business environment for farmers and other rural entrepreneurs;
- realization of economic, environmental and social objectives of sustainable development, in which multifunctional agriculture and rural development have a special place;
- willingness to respond to the demands arising from the process of accession to the EU.

In Table 3 based on the data of the Statistical Institute of Serbia the authors present the macroeconomic indicators that show the share of agriculture in the national economy of Serbia.

Table 3. **Macroeconomic indicators of the share of agriculture in the national economy**

Indicators	The observation								
	2004	2005	2006	2007	2008	2009	2010	2011	2012
GDP (current prices, mln EUR)	2.186	2.024	2.189	2.443	2.916	2.320	2.379	2.873	2.624
GDP in agriculture (% of the total GDP)	13.5	11.8	11	10.1	10.4	9.3	9.9	10.5	10.1
Employees, ths	/	839	707	725	674	622	523	466	467.1
Share in total employment, %	23.2	22.7	20.2	20.3	23.9	23.8	22.2	21.2	21.0
Export of food products, mln EUR	629	732.0	992	1.218	1.328	1.381	1.672	1.920	2.094
Share in total exports, %	22.2	20.3	19.4	18.9	17.9	23.2	22.6	22.8	23.7
Import of food products, mln EUR	688	622	721	600	754	711	896	1.001	1.138
Share in total imports, %	8.0	7.4	6.9	4.4	4.6	6.3	7.2	7.0	7.7
Balance of trade in food industry, mln EUR	-59	110	271	618	574	670	776	919	956
Import coverage ratio, %	91.4	114.8	137.6	201.7	175.2	194.2	186.6	191.8	184.0

Source: authors' construction based on the Statistical Office of the Republic of Serbia data.

Basing on the given macroeconomic indicators for the period 2008–2012 we can conclude that:

- GDP in agriculture is expressed in current prices of the beginning of observations, i.e. 2008, and decreased by approximately 292 mln EUR;
- the share in total employment decreased at the end of 2012, and compared to 2008 it was lower by about 2.9%, having a negative impact on the overall employment rate in Serbia, and we can say that the agricultural sector instead of receiving the unemployed from other sectors, also had a decline in employment;
- export of agricultural products at the end of the period was higher by about 1.6 times;
- the largest positive balance can be seen from the ratio of coverage of agricultural and food industries in trade balance, which at the beginning of the observation period was 574 mln EUR, and amounted to 956 mln EUR in 2012, representing a

nominal increase of 382 mln EUR, and this is the data which any government that wants prosperity of the economy must take into account;

- the export-import ratio was positive throughout the observation period of 2008–2012.

In order to fully display the importance of oil production for Serbia, the authors collected and analyzed the data related to the area under major field crops, capturing in particular the area under oilseeds, to get a true picture of the importance of oilseeds. The presentation is given in Table 4.

Table 4. **Area of major field crops in the Republic of Serbia**

Area, ths tons / ha	Years	2004	2005	2006	2007	2008	2009	2010	2011	2012
	Total grain	2,003	1,941	1,853	1,900	1,899	1,912	1,837	1,865	1,896
	Wheat	636	563	540	559	487	568	484	493	481
	Corn	1,200	1,220	1,170	1,202	1,274	1,209	1,230	1,258	1,269
	Oil-seeds	308	331	347	315	350	320	352	355	338

Source: authors' construction based on the Statistical Office of the Republic of Serbia data.

Oilseeds production can be developed, increasing the areas to be sown, which is the basis for yield increase as can be seen in Table 5, which shows production of major field crops in Serbia in the period of 2004–2012.

Table 5. **Production of major field crops in the Republic of Serbia**

Area, ths tons / ha	Years	2004	2005	2006	2007	2008	2009	2010	2011	2012
	Total grain	9,926	9,586	8,349	6,213	8,833	8,982	9,273	9,066	5913
	Wheat	2,758	2,007	1,875	1,864	2,095	2,068	1,631	2,076	1,911
	Corn	6,569	7,038	6,017	3,905	6,158	6,396	7,207	6,480	3,532
	Oilseeds	760	722	822	628	857	771	944	917	667

Source: authors' construction based on the Statistical Office of the Republic of Serbia data.

A display of the substantial decline in grain production can be seen which was approximately 4 mln tons at the end of the period. In the same period the overall decline in oilseeds production was 93 mln tons. This suggests that the drop in oilseeds production was much smaller than that of grain, which means that farmers were interested in oilseeds production, not only because of crop rotation, but also because of economic benefits. There is a real need for soybean products in Serbia. The demand for these goods is real and increasing the production and processing of soybeans for domestic markets Republic of Serbia would have great benefits, about 50 mln USD annually.

In addition to the major effect, an increase in livestock production could be also expected, especially in pig production. Instead of livestock products exporter in some years, the Republic of Serbia is becoming an importer. In the substitution of imports of meat and meat products, oil production might be a factor of development, because of the increase of the processing oil industry role, due to the products in the form of oil which can be mixed in different fattening livestock species. Besides soy processing, by-products are formed which again can become raw materials for livestock feed or concentrates used by livestock enterprises in poultry nutrition and livestock.

Processing of oilseeds and the prices for some crops and sunflower. As one of the largest producers of oilseeds in the region, Serbia is also the area with the greatest pro-

cessing capacities in the CEFTA region. The capacity of oil industry enables the annual processing of 885,600 tons of sunflower, 482,000 tons of soybeans and 247,000 tons of rapeseed. The average level of sunflower processing in Serbia was at the level of only 40% of available capacity, and soybeans – 70% in the last 10 years. The quality of raw materials and promising market (primarily soybeans processing) open up good opportunities for fuller use of these capacity. Compared to neighboring countries, the price for herbal products in Serbia are lower. Price competitiveness is particularly pronounced in grain and industrial crops, while in vegetable and fruit production is only valid for certain products and certain years. Graphical representation of the selling prices of wheat, sugar beet and sunflower are shown in Figures 2–4, which is related to the period 2005–2011 in the Republic of Serbia.

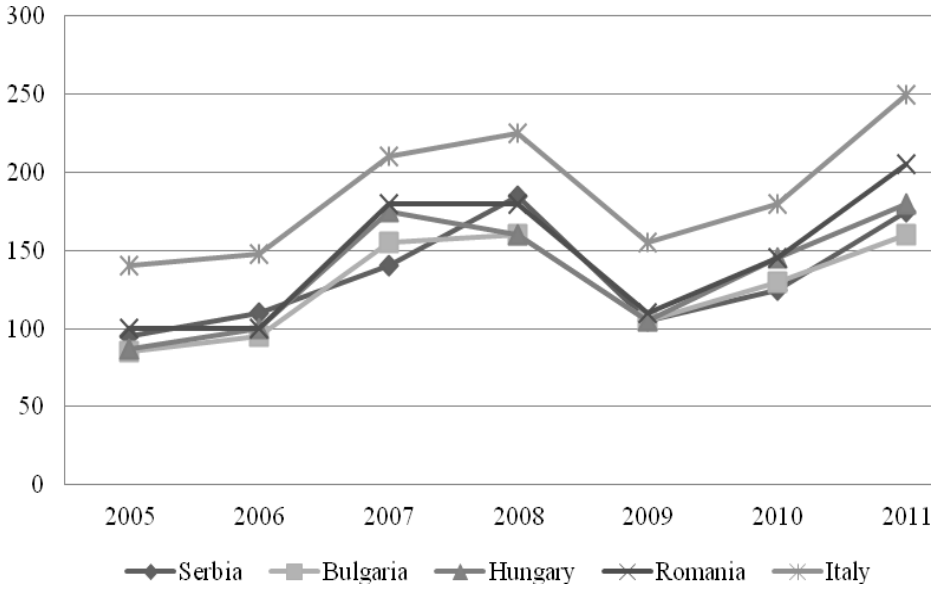

Figure 2. **The sales price of wheat (EUR/ton) at the surveyed countries,** *constructed by the authors based on the* Statistical Office of the Republic of Serbia data

During the entire period of observation, the state did not provide the direct support for oilseeds production. Only in 2004 and 2005 in a small volume the state helped the production of pumpkin oil. In the coming years, the state through premiums has not supported this production. This shows a realistic picture of the state's influence in the branch. This review gives a picture of state support and can be used for further researches, especially in terms of food industry development.

Conclusions and recommendations. Serbia represents a regional leader in oilseeds production. Some of the important indicators related to the installed capacity of oil industry are presented in the paper. For example, the annual maximum processing is approximately 900,000 tons of sunflower, 500,000 tons of soybean and 250,000 tons of rapeseed. The average level of sunflower processing was at a level of only 65% of the available capacities in Serbia in the last 10 years.

Serbia capacities and potential for export development. However, it should be noted that in the period from 2004 to 2012 the Republic of Serbia did not help this

industry through price support measures, as well as through premiums. Primary agricultural production of sunflower and soybean is the basis for the development of manufacturing. The contribution of this article is that it provides a realistic descriprion of macroeconomic factors of influence on the development of oil production.

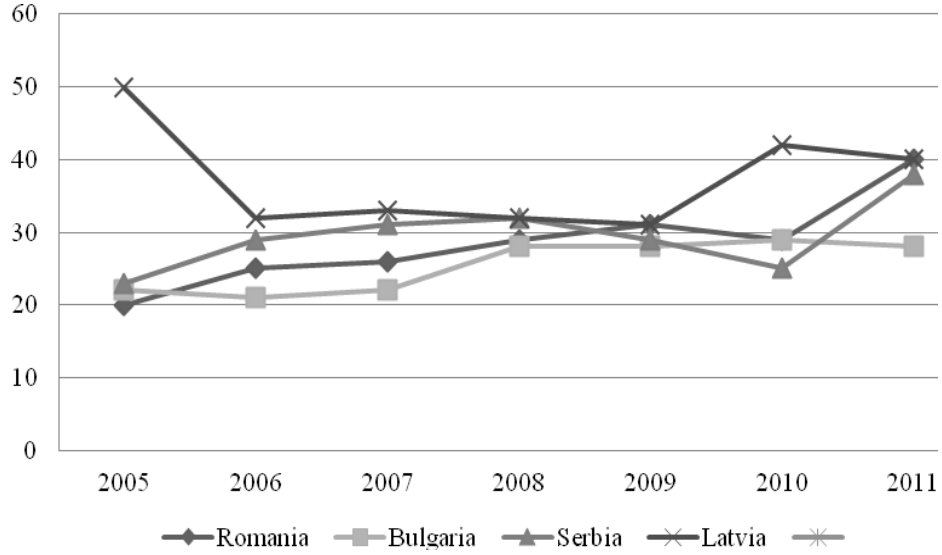

Figure 3. **The sales price of sugar beet (EUR/ton) at the surveyed countries,** *constructed by the authors based on the* Statistical Office of the Republic of Serbia data

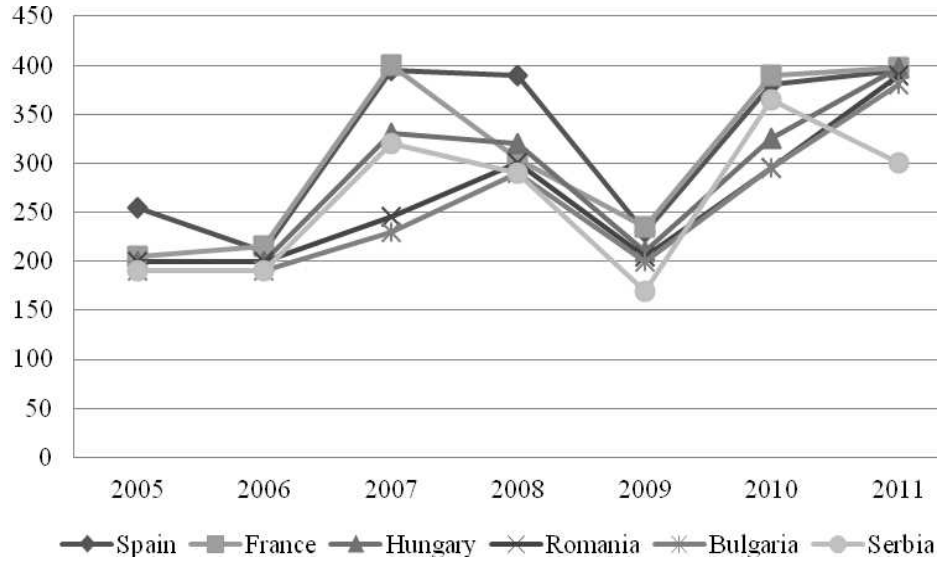

Figure 4. **Selling prices of sunflower (EUR/ton) at the surveyed countries,** *constructed by the authors based on the* Statistical Office of the Republic of Serbia data

Despite the relatively inactive attitude of the state towards the oil industry, it has made exports, for example, of sunflower oil annually for about 100 mln USD. Future

events are going in the direction of increasing trade sanctions by the EU to Russia. This is also a chance for the export of all food products from Serbia, which is not yet in the EU.

Increasing oil production is only possible if primary agricultural production significantly increases. This will happen if there is a clear plan of the state, which will bring its incentives. The capacity of the processing industry of the Republic of Serbia is more than sufficient for the quantities produced, which is an opportunity for the development of the whole of agriculture, and the economy in general.

The aim of the paper is to show to the professional public the importance of industrial crops, particularly sunflower and soybeans for the economy of Serbia. This points to the importance of establishing a wider range of crops that the country can have as a basis for final products manufacturing. The objective of the study is to highlight the importance of industrial plants not only from the agronomic point of view (due to crop rotation), but also from the economic one, as it can significantly improve the results of the whole economy. Processing capacities in Serbia are most active in the whole area of the Southeastern Balkans, being a comparative advantage of Serbia. Serbia benefits from growing industrial crops in favorable conditious, there are processing facilities already constructed for processing of the entire quantity produced in comparison with neighboring countries.

Production of oil in Serbia should be viewed in the context of the global production of oil. Since 2000 production of oil in the world is on the increase, with approximately 60% growth, however, the sown areas increased only by about 30%. Consumption is growing constantly in all the countries in the Southeastern Balkans and in most European countries. Based on these data we can clearly point out that there are great chances for the Republic of Serbia in primary production of oil crops. And the economic effects can be achieved by processing them into products of higher level of processing. Manufacturing activities in this case will directly influence the GDP of Serbia.

Finalization of primary production of oil plant species increasing the employment rate. This leads to absorption of surplus labor from other sectors of the economy. In addition to obvious direct impacts, in this paper the authors also pointed out other sides of improving the country's GDP.

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