

**Tomislav Kovačević, M. Sc. Agr.**

Student Management postgraduate University study, Faculty of Economics in Osijek  
Vinogradska 32, Sibenj 35252  
Phone: 098 980 46 24  
E-mail address: tomlslav85@net.hr

**Matija Japundžić, M. Sc. Agr.**

Matije Gupca 32, Sibenj 35252  
Phone: 098 909 54 36  
E-mail address: matija.japundzic@net.hr

**Mirko Jokić, M. Sc. Agr.**

OPG Mirko Jokić  
Matije Gupca 1, Lipovac 32246  
Phone: 098 975 39 61  
E-mail address: zu.sv.lovre@vu.t-com.hr

**THE ROLE OF AGRICULTURE  
IN ECONOMY OF MIDDLE AND EASTERN CROATIA**

**ULOGA POLJOPRIVREDE U GOSPODARSTVU  
SREDNJE I ISTOČNE HRVATSKE**

***ABSTRACT***

*Croatian Republic is a land of rich and quality natural resources – highly fertile soils, favorable climate and abundance of water resources. Importance of agriculture is not only in its primary role to ensure food for population, but as well in preservation of rural space, ecological balance and keeping of traditional values. Apart from producing crops and livestock products for human consumption, agriculture participates in development of other industries whose products are needed in performance of agricultural activity, such as machinery industry and agricultural equipment, industry of mineral fertilizers, industry of reproductive material, construction industry and others. By using information's from Central Bureau of Statistics about rural population, indicators of Gross Domestic Product (GDP), employment in agriculture, forestry and fisheries, the role of agriculture in economy of Middle and Eastern Croatia has been analyzed. In the analysis Croatian Republic has been classified in three NUTS2 regions (Northwestern Croatia, Middle and Eastern (Pannonia) Croatia, and Adriatic Croatia). The share of agricultural production (in which hunting, forestry and fisheries are included) in Gross Value Added of Middle and Eastern Croatia is registering constant growth from 7,768 mill. of kunas in 2005 on 10,484 mill. in 2008 – increase of 25.91%, while in year 2009 decrease of 2,833 mill. kunas or 37.03% has been recorded. According to information's of Central Bureau of Statistics number of employed in Middle and Eastern Croatia in period from 2008 till 2011 fell for 28.413 employees, while number of employees in agriculture, forestry and fisheries in same period fell for 1.030 employees. The share of employed in agriculture, fisheries and forestry in overall rate of employed grows and in 2008 amounts 5.64%. Considering the connection with supplementary activities, from producing agricultural inputs till traffic processing and marketing of agricultural products, the importance of agriculture in economy of Croatia is higher than listed shares showed.*

**Key words:** agriculture, agricultural population, the economy, the middle and eastern Croatia, GDP

## SAŽETAK

Republika Hrvatska je zemlja bogatih i kvalitetnih prirodnih resursa – zemljišta dobre plodnosti, klimatskih pogodnosti i obilja vodenih resursa. Važnost poljoprivrede ne ogleda se samo iz primarne uloge osiguranja prehrambenih proizvoda stanovništvu, već i iz njene uloge u očuvanju ruralnog prostora, ekološke ravnoteže i održanju tradicijskih vrijednosti. Poljoprivreda osim što proizvodi biljne i stočarske proizvode za prehranu stanovništva, ona i sudjeluje u razvoju ostalih industrija čiji su proizvodi ili usluge potrebni za obavljanje poljoprivredne djelatnosti, gdje pripadaju industrija mehanizacije i opreme za poljodjelstvo, industrija mineralnih gnojiva, industrija reprodukcijskog materijala, građevinska industrija itd. Koristeći se podacima iz Državnog zavoda za statistiku o poljoprivrednom stanovništvu, pokazateljima o bruto domaćem proizvodu, zaposlenosti u poljoprivredi, šumarstvu i ribarstvu u radu je analizirana uloga poljoprivrede u gospodarstvu srednje i istočne Hrvatske. U analizi je korištena podjela Republike Hrvatske na tri NUTS 2 regije (Sjeverozapadna Hrvatska, Središnja i Istočna (Panonska) Hrvatska i Jadranska Hrvatska). Udio poljoprivredne proizvodnje (u što su uključeni lov, šumarstvo i ribarstvo) u ukupno bruto dodanoj vrijednosti srednje i istočne Hrvatske bilježi konstantna rast s 7,768 mil. kuna u 2005. godini na 10,484 mil. kuna u 2008. godini – povećanje od 25,91%, dok u 2009. godini bilježi pad za 2,833 mil. kuna ili za 37,03%. Prema podacima DZS RH broj ukupno zaposlenih u središnjoj i istočnoj Hrvatskoj u razdoblju od 2008. godine do 2011. godine je pao za 28.413 zaposlenih, dok je broj zaposlenih u poljoprivredi, šumarstvu i ribarstvu u istom razdoblju pao za 1.030 zaposlenih. Udio zaposlenih u poljoprivredi, ribarstvu, šumarstvu u ukupnoj stopi zaposlenosti raste te u 2008. godini iznosi je 5,44%, dok taj udio u 2011. godini iznosi 5,64%. S obzirom na povezanost s dopunskim djelatnostima, od proizvodnje poljoprivrednih inputa do prerade, prometa i trženja poljoprivrednih proizvoda, važnost poljoprivrede u hrvatskom gospodarstvu je veća nego što pokazuju navedeni udjeli.

**Ključne riječi:** poljoprivreda, poljoprivredno stanovništvo, gospodarstvo, srednja i istočna Hrvatska, BDP

## 1. Introduction

Beside mentioned tasks, agriculture is contributing to development of non-agricultural sector and as a market for industrial products (mechanization, mineral fertilizers, plant protection...) or for products for personal consumption of agricultural population, including nutritional products. Agriculture is economic activity that in overall Croatian economy participates by 7% in GDP (1998), somewhat more in employment (13%) and along with processing industry in foreign trade balance with significant 10 to 12%.

In Croatian economy, agriculture has its place, defined by well recognized and known status. The importance of agriculture is evident through: the share of agricultural population in overall population of Croatia, employment in agricultural sector, contribution to the GDP in direct and multiplicative meanings and gross value added (GVA) for Republic of Croatia. Today, the importance of agriculture is not only in traditional sense of ensuring satisfying population's nutritional needs, but also in its role in preservation of rural environment, ecological balance and keeping traditional values, material and spiritual culture of Croatian village (Par et al., 2008,726).

## 2. Material and Methods

In order to analyze the role of agriculture in economy of Eastern and Central Croatia, the data of total agricultural population of Central and Eastern Croatia, indicators of GDP and number of

employed in agriculture were used. Statistical division of Croatian Republic on NUTS regions of second level (NUTS 2) was used in analysis. According to NUTS 2 Croatia is divided in three regions: North-western Croatia, Central and Eastern (Pannonia) Croatia, and Adriatic region. In this paper Central and Eastern Croatia are analyzed, which is per NUTS 2 composed of Bjelovar-Bilogora, Virovitica-Podravina, Požega-Slavonia, Brod-Posavina, Osijek-Baranja, Vukovar-Srijem, Karlovac and Sisak-Moslavina County.

As a source of information the data from the Central Bureau of Statistics for various years were used, the data is organized in tables or graphs, depending on their purpose.

When using statistical data, it is necessary to indicate on a problem of gathering information's and availability of statistical and other information's about agricultural population at the county level from official sources, which considerably made it harder and more limited to make this agro-economic research.

### 3. Research results

#### 3.1. Agricultural population

By agricultural population it is understood, according to criteria that was valid in 1981 and 1991 census, that people whose profession is among "agriculturists" and "fishermen and hunters" same as those who were supported by them. According to 2001 census, agricultural population is made of people whose profession is classified by the National Profession Classification as "agricultural, hunt-rearing, forestry workers and fishermen" and in type of occupation as "simple agricultural, forestry and fisheries occupations", together with people supported by them (Japundžić et al., 2011, 69). According to 2001 census, from total of 1.351.517 people living in Central and Eastern Croatia, 120.661 makes agricultural population or only 8.93% out of total population living in that area. During the period from 1991 till 2001 number of agricultural population in Central and Eastern Croatia fell from 218.069 or 28.5% of total population on just 120.661 or 8.93% of total population. On county levels the most significant fall of agricultural population in 2001 was in Sisak-Moslavina County (72.73%) while the smallest rate was in Bjelovar-Bilogora County (24.73%).

Table 1 Agricultural population of central and eastern Croatian in 1991 and 2001

County of Center and Eastern Croatia	1991		2001	
	Total agricultural population	Share in total (%)	Total agricultural population	Share in total (%)
Bjelovar-Bilogora	36.573	25,39	27.529	20,69
Virovitica-Podravina	26.067	24,91	12.908	13,82
Požega-Slavonia	14.361	14,46	8.279	9,65
Brod-Posavina	19.730	11,27	13.554	7,67
Osječko-Baranja	36.826	15,93	21.112	10,31
Vukovar-Srijem	30.320	13,11	19.202	9,38
Karlovac	16.320	8,84	7.749	5,47
Sisak-Moslavina	37.872	15,07	10.328	5,57
Total	218.069	15,34	120.661	9,84

Source: <http://hgk.biznet.hr/hgk/fileovi/3664.pdf>

Regional differences in spatial distribution are also evident. North-west region marks only a small average increase (5.61%) of agricultural population in total population compared to whole Croatia. At the same time, Central and Eastern (Pannonia) region has above-average share of agricultural population (8.94%), and Adriatic region has only 2.27% of that kind of population (Par et al., 2008, 727).

Development of non-agricultural sector, historically, was not possible without a parallel transfer of labor force and material resources in craft, trade and other non-agricultural activity. Lower work productivity in agriculture and lower incomes related to that activity were the main impeller of population outflow from agriculture (Grahovac, 2005, 87). Dominant changes in the economic structure of the population and is the change that occurs in the distribution of total and active population between agriculture and non-agricultural activities, and between primary, secondary and tertiary activities (Wertheimer-Baletić, 1978, 34-35).

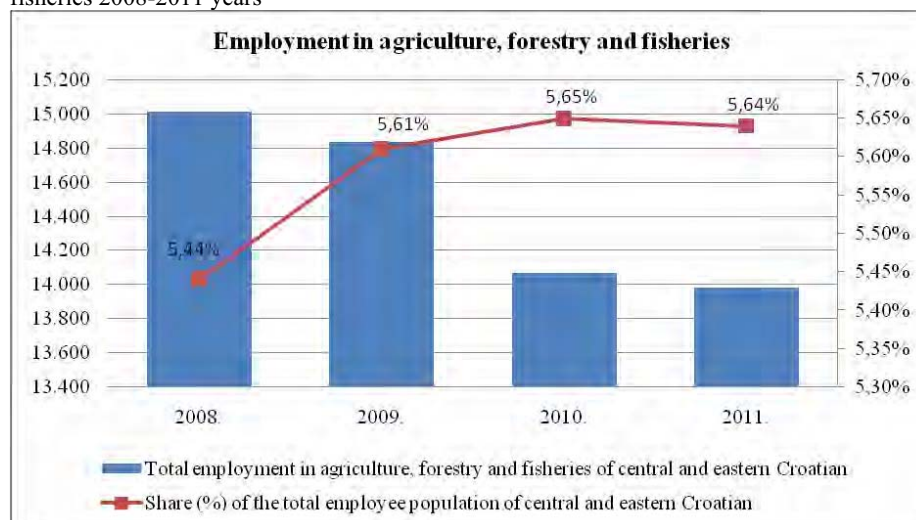
### **3.2. Employment in Agricultural sector**

Labor force in agriculture as one of the fundamental factors in agricultural production is reliable indicator of importance of this activity in economical development of Central and Eastern Croatia. General social and economic development in dynamic scientific and technological development made it possible for labor force to leave agriculture and exceeds in non-agricultural sector. The pace of leaving agricultural production depended almost on development of industry, traffic, trade and other non-agricultural activities. Traditional content of agricultural production is losing its characteristics (high rate of agricultural population in total population, low work productivity rate, low equipment of capital production, and high rate of some crop production, fragmented properties and other) with significantly unfortunate outcome. In case of labor force, undesirable processes of senilization and feminization come across agricultural production. Higher rates of older agricultural population along with increasing female agricultural population become typical frame of Croatian village that is slowly changing. Agricultural production is more often left by young people who, after they have their education is done, rarely return to their homeland and that way they additionally contribute to negative characteristics in agricultural production.

Former vividness of literarily described landscapes becomes only a sad story along the constant «efforts» and promises about something should be changed. And changes often have virtual character that goes in favor to (non)determined individuals: when first chance is created, homeland is deserted and is immersed in omnipresent process of urbanization with uncertain consequences. That way, labor force flow was less perceived as mechanical transfer of agricultural workers in non-agricultural sector, but more as economic and social problem with deep changes of material and social community (Barić, 2012, 22). Size of the agricultural population and the share of the agricultural population in the total population, a reflection of the degree of economic development of the country. Developing countries is characterized by a high share of agricultural population in the total population of the country (Japundžić et al., 2011, 70). Moreover, under conditions of slow changing or developing the economic structure of the country despite the decrease in percentage share of the agricultural population in the total population of the country, the absolute number of agricultural population grows.

Employment in whole Republic of Croatia is falling in period from 2008 till 2011, so number of employed in agriculture, forestry and fisheries is falling too. In Central and Eastern Croatia in period 2008-2011 number of employed in agriculture, forestry and fisheries fell for 1.030 employees. The share of employed in agricultural activities compared to total amount of employed is growing from 5.44% in 2008 on 5.64% in 2011. Due to connection with complementary activities, from producing agricultural inputs till processing, transporting and trade of agricultural products, the importance of agriculture in Croatian economy is greater than listed shares indicate.

Figure 1 Total number of employees of Central and Eastern Croatian agriculture, forestry and fisheries 2008-2011 years<sup>39</sup>



Source: Created by authors on data the Central Bureau of Statistics

Moreover, unformed employment and involvement of people in agricultural production is significant, that is more than million members of those households that more or less, are engaged in agriculture. The size of agricultural population, just as share of agricultural population within total population, is a reflection of level of economical development of a country. For undeveloped countries high share of agricultural population in total population is characteristic, and along with that, high number of agricultural population as well. Furthermore, in conditions of slow changes, or economic development of a country despite decrease in share of agricultural population in total population, absolute number of agricultural residents is growing (Petrač, 2003.). Croatian unemployment is characterized by big regional differences, and lowest rates always have the most developed part of Republic of Croatia, City of Zagreb. An international comparison of unemployment levels according to labor force survey shows us that in the long term unemployment rate is well above the EU average although the global crisis had a different impact on the various unemployment by individual countries (Čavrak et al., 2011, 140)

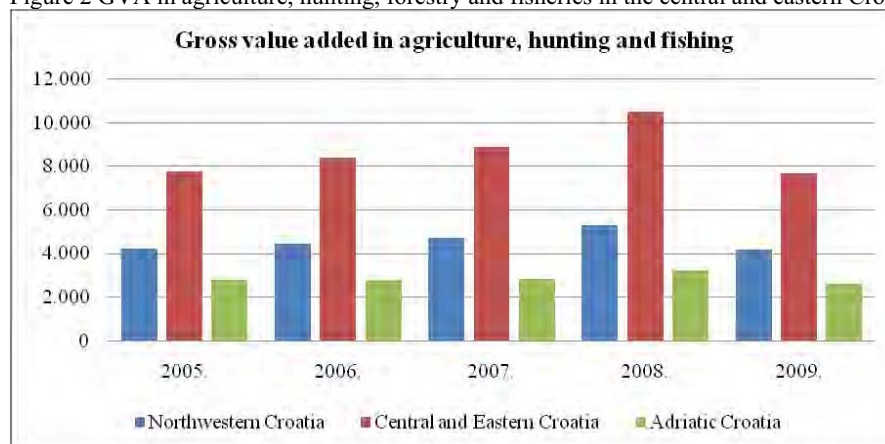
### 3.3. The share of agriculture in the economy of central and eastern Croatian

By economic development and growth of domestic product per capita, the share of agriculture in shaping gross domestic product is decreased and it is confirmed on example of Croatian Republic how by growth of domestic product per capita the share of agriculture in total economy is decreased, or by stagnation of economy the share of agriculture in whole economic structure is in stagnation too (Zmaić, 2008, 73).

Lower GDP per capita of rural environment is a fundamental economic feature. If on average, GDP per capita in all EU (15) countries is 100 poens (1994), equal GDP per capita is in strictly rural areas 88,4, while in urban areas even 109,6 poens (Defilippis, 2009, 828).

<sup>39</sup> 2008 years according to NACE's 2002 (NN 52/03), 2009., 2010 and 2011 years, according to NACE's 2007 (NN 58 / 07th and 72/07), at 31 March 2008, 2009, 2010, 2011.

Figure 2 GVA in agriculture, hunting, forestry and fisheries in the central and eastern Croatia



Source: Created by authors on data the Central Bureau of Statistics

Total GVA in 2009 from agriculture, hunting, forestry and fisheries was 7.651 million of HRK (Croatian kunas) which is 13.17% of total GVA of Central and Eastern Croatia.

But due to ambiguity of agriculture as economic activity and her role in agribusiness or food chain, it certainly is an activity of primary importance for Central and Eastern Croatia.

When it is about GVA accomplished per agricultural capita, the importance of certain regions is changing. The biggest GVA per agricultural capita is achieved in area of Adriatic region and amounts 83.210 HRK. In Central and Eastern Croatia 63.591 HRK, and in North-west Croatia only 46.024 HRK is achieved (Par et al, 2008, 729).

#### 4. Conclusion

Economic development of agriculture is increasingly integrated into the whole of overall economic activity. Agricultural production is the basis of any economy. In Croatia, about 10% of the population engaged in agricultural activities, which is higher than the EU average, agriculture is engaged revising 4% to 7% of the population. Industrialization and modernization have brought in Croatian society and rural development. Rural development should be understood in the context of contemporary globalization and transition, as well as in the context of changes in ecological awareness. Rural development can't be confined to the modernization of agriculture. He is equally concerned and villages, environment, technology, and agriculture (Šundalić and Sudarić, 2003, 260). The importance of agriculture is not exhausted, however, even in the broadest scope of its economic determinations. Agriculture, countryside and peasants have a positive impact on many areas of the overall activities of the company: from the defense capability of the country to protect the natural environment.

Food purpose of most of the final agricultural production is determined and its first and most important task: to feed the local population, or more precisely, to ensure satisfactory primary production of food products. This, like every other, the task may be performed more or less successfully. Agriculture needs to meet the population's needs appropriate amounts and the structure and quality of the product, and with low costs of production. The second task is to provide the agriculture industry raw materials of agricultural origin such as production of food products, beverages, tobacco, leather, textile fibers, animal feed. Third is the export function of agriculture that can be more precisely defined as the efforts to export farm products realize greater foreign exchange earnings. Although agriculture which provides a relatively small contribution to the overall economy of Central and Eastern Croatian, it will continue to be a necessary and important

factor in the overall economy, because the basic function is to provide enough food to feed the population.

## REFERENCES

Babić, A., Lovrinčević, Ž., Mikulić, D. (1996): *Procjena BDP-a Republike Hrvatske za 1994. i 1995. godinu*, Privredna kretanja i ekonomska politika, Vol. 6, No. 52, str. 53-79.

Barić, V. (2012): *Zaposlenost u poljoprivredi Bjelovarsko-bilogorske županije: stanje i perspektive*, sv. 6, str. 17-31.

Croatian Bureau of Statistics, poljoprivredno stanovništvo prema aktivnosti i spolu, po gradovima/općinama, popis 2001.  
[http://www.dzs.hr/Hrv/censuses/Census2001/Popis/H01\\_01\\_11/H01\\_01\\_11.html](http://www.dzs.hr/Hrv/censuses/Census2001/Popis/H01_01_11/H01_01_11.html) (accessed 12 december 2012)

Čavrak V., Družić I., Barić V., Grahovac P., Gelo, T., Karaman Aksentijević, N., Mrnjavac, Ž., Obadić, A., Pašalić, Ž., Smolić, Š., Šimurina, J., Tica, J. (2011): *Gospodarstvo Hrvatske*, Politička kultura, Zagreb.

Defilippis J. (2009): *Hrvatska u ruralnom prostoru Europe*, Sociologija i prostor, Vol. 43, No. 4 (170), str. 823-836.

Hrvatska gospodarska komora, Sektor za gospodarsku strategiju, Stanovništvo RH, <http://hgk.biznet.hr/hgk/fileovi/3664.pdf> (accessed 7 January 2013)

Japundžić, M., Palenkić, J. B., Fajdetic, R. N. (2011): *Kvantitativna i kvalitativna obilježja poljoprivrednog stanovništva u Republici Hrvatskoj*, Zbornik radova Veleučilišta u Slavonskom Brodu, Godina 2. Broj 2, Slavonski Brod.

Par, V., Njavro, M., Hadelan, L. (2008): *Agricultural importance in Croatian economy structure*, 1<sup>st</sup> International Conference "Vallis Aurea" – Požega: Polytechnic of Pozega DAAM i International Vienna, 2008, str. 725-729.

Petrač, B. (2003): *Agrarna ekonomika*, Ekonomski fakultet u Osijeku, Osijek.

Poljoprivreda, prehrana i veterina – ASOO, Agencija za strukovno obrazovanje i obrazovanje odraslih, Radnička 37b/VII, 10000 Zagreb, Hrvatska, PRINTER GRUPA d.o.o.  
<http://www.asoo.hr/UserDocsImages/projekti/kvalifikacije/ishodi/planiranje%20kv/poljoprivreda.pdf> (accessed 5 December 2012)

Statistički ljetopis, Državni zavoda za statistiku Republike Hrvatske 2002.

Šundalić, A., Sudarić, T. (2009): *Slavonija i Baranja danas: između revitalizacije ruralne tradicije i tržišne transformacije*, Zbornik radova: Agroekologija i ekološka poljoprivreda, Agroekonomika i agrosociologija, [http://sa.agr.hr/pdf/2009/sa2009\\_p0227.pdf](http://sa.agr.hr/pdf/2009/sa2009_p0227.pdf) (accessed 10 January 2013)

Wertheimer-Baletić, A. (1978): *Ekonomska aktivnost stanovništvo*, Demografski aspekti, Školska knjiga, Zagreb.

Zmaić, K. (2008): *Osnove Agroekonomike*, Poljoprivredni fakultet u Osijeku, Osijek.