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EFFECTS OF POVERTY ON THE LEVEL OF FOOD SECURITY IN COUNTRIES OF THE FORMER YUGOSLAVIA

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This paper examines factors that affect the level of food security in the former Yugoslavia (Serbia, Bosnia and Herzegovina, Croatia, Slovenia, Montenegro and Macedonia). The data on the basis of which the research was carried out were collected from the national statistics and the database of the World Bank for the period 2006–2018, and as a statistical method, the multivariate analysis of variance (MANOVA) was used. The results obtained indicate that there is a statistically significant correlation between the gross domestic product per capita (\$), growth of urban population, growth of rural population, percentage of undernourished population and poverty rate. Differences between countries in terms of these factors indicate the level of food security.

Keywords: food security, poverty, sustainable development, economic indicators, demographic indicators



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INTRODUCTION

One of the basic goals of all national policies in the world is to reduce the incidence of hunger and poverty, but increase food security. Reducing the number of undernourished and poor

people is a necessary and indispensable condition for promoting the right human development, both on the personal and the social levels. Undernourishment and poverty are the main causes of illness and death that occur every day in the world (Ruiz, 2010). Today, some 700 million people, most of whom live in rural areas, are still poor. In addition, despite significant advances in reducing undernourishment and improving nutrition levels, nearly 800 million people are chronically hungry, while 2 billion lack micronutrients (FAO, 2018).

What is not disputable is that economic growth is necessary to reduce the rate of poverty and to ensure food security, and agriculture is an important driver of economic growth. One of the most effective means of stimulating economic growth and poverty reduction, especially in low-level economic development, are investments in agriculture. Investment in agriculture leads to agricultural development and creates the basis for increasing agricultural production, reducing food deficit, increasing surplus and revenue.

Starting from the demand for agri-food products, it is necessary to define and develop the principles of market interventions in the long run, in order to maintain the needs of the production of commodities (Lovre, 2013). Therefore, in order to reduce the number of people at risk of poverty/disadvantaged people and maintain food security, there needs to be a stability of food supply that will be affordable for consumers and cost-effective for producers.

The aim of this research is to identify the impact of different socioeconomic parameters (poverty, the number of undernourished, growth of urban population and rural population and GDP-per capita) on the level of food security in countries of former Yugoslavia, to inform further creation, adjustments and implementation of national programmes and policies.

Poverty, undernourishment and food insecurity

Despite the progress in increasing food production, today there are still many poor and undernourished people around the world. The relationship between poverty and undernourishment is complex, but several key correlations can be found. The risk of undernourishment can be associated with low incomes, education levels, low employment rates, income volatility etc. Namely, undernourishment is basically the outcome of poverty (World Food Program, 2012).

When it comes to poverty, in the OECD Guidelines there is the following definition: "poverty covers the various dimensions of deprivation that relate to human abilities including consumption and food security, health, education, rights, voting rights, security and dignity" (OECD, 2001, p. 8). This approach, that is, the conceptualisation of poverty is widely

accepted in various scientific circles, as well as among the creators of various economic, social and public policies. What is problematic is that some dimensions of poverty are difficult to measure and quantify.

There is no doubt that countries in transition have achieved significant, although uneven progress in improving living standards over the past 30 years. However, the reduction of poverty, in the context of sustainable development, remains a major challenge. This means that social and economic inequality are the main obstacle to a sustainable reduction of poverty. Globalisation and new trends offer promising ways to foster growth and reduce poverty, but will require a lot of effort to ensure that the poor have adequate access to available resources (OECD, 2001).

Undernourishment is a term used to indicate a wide range of nutritional problems and is the result of insufficiency of one or more factors contributing to adequate nutrition. This notion involves insufficient nutrition and is caused by a number of factors, including nutritional and non-nutritional factors (Babu et al., 2017). It represents an individual problem that relates to the distribution of food and income within countries, and it also represents a national and international problem that is related to geographic distribution of food, income and population size (Norton et al., 2010). Undernourishment is the problem of poverty. The poor cannot afford enough food or cannot produce enough, indicating the level of nutritional security that exists in one country. Bearing this in mind, on 25th September 2015, the United Nations adopted a number of goals to end poverty, protect the planet and secure prosperity as part of the sustainable development goals (SDG 2). In order to reduce the number of hungry people and provide food security, the objectives of sustainable development are as follows: (1) end hunger and ensure access by all people, especially the poor, to safe and sufficient food by 2030; (2) end all forms of malnutrition by 2030; (3) by 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including safe and equitable access to land, other productive resources and inputs, knowledge, financial resources, services, markets and create employment opportunities outside the farm (United Nations, 2022).

Poverty and undernourishment significantly determine the level of food security. The concept of food security was defined at the World Food Summit in 1996, pointing out that "food security in an individual household, national, regional and global level is achieved when all people have a physical and economical approach to sufficient, safe and nutritious food at all times to meet their nutritional needs and food preference

for active and healthy life "(FAO, 1996). On the other hand, food insecurity exists when there is limited availability of safe and adequate food or there is a restriction on the acquisition of food in a socially acceptable manner (Lee & Frongillo, 2001). Food insecurity can be temporary (when it occurs in times of crisis), seasonal or chronic (when it occurs on a continuous basis). Most often, food insecurity occurs as a result of unequal distribution in regions, countries, households and individuals. Other factors which affect food insecurity include: food inaccessibility due to drought, flood, crop failure or other disasters; the lack of food supplies due to inadequate purchasing power and less food consumption due to poor health (Rivera, 2003). Based on the above, it can be concluded that food insecurity occurs in situations where there is (1) uncertainty about the adequacy of food supply and access to food, (2) an insufficient amount and type of food needed for a healthy lifestyle, or (3) the need to use socially unacceptable ways of getting food. Although a lack of funding is the most common limitation, food insecurity also exists when food is available, but cannot be used due to physical or other constraints, such as the limited physical functioning of older persons with disabilities (Wunderlich & Norwood, 2006).

Food security and economic systems in less developed countries are under the influence of the international economic environment. Trade and other economic processes abroad and in the country, international capital flows, migrations, and commodities price shocks in combination lead to an increase in food insecurity (Norton et al., 2010). In addition, the demand for food products, and therefore food security, is significantly influenced by household expenditures, the financial situation of the household, and the number of household members (Kovljenić & Savić, 2017). In this context, food policies play an important role in reducing poverty. They support the improvement of coordination along value chains and ensure that weaker segments in the chain take advantage of the integration of agriculture into the market. Successful food security programmes and poverty reduction-oriented programmes do not only help the rural poor to produce more and diversify products, but also to produce surpluses that can be marketed and thus generate income to improve the quality of life through improved nutrition, investment in production activities and as collateral for loans for further investment in production (Rivera, 2003). However, permanent poverty reduction includes actions that go beyond both rural and urban areas. They should focus on: providing access to good and quality education, promoting economic diversification of non-agricultural activities in rural areas, supporting job creation, savings and investment potentials of the poor, and imple-

menting adequate social protection mechanisms (FAO, 2018).

The key factor for success in reducing undernourishment and food insecurity is economic growth (Mergos & Papanastassiou, 2017). Agriculture is an important driver of economic growth, especially in rural areas and in least developed countries. Economic growth involves the development or expansion, it implies changes in the living standards of people. Successful economic development requires, as a minimum, growth in per capita income, eradication of absolute poverty, and a long-term reduction in inequality. Economic development is a dynamic process that includes not only changes in the structure and level of economic activity, but also enhances the possibilities for individual choice. Development is difficult to measure, but it is often necessary to do so to assess the impacts of specific programmes. Because of the multiple dimensions, interpretation of a particular developmental indicator can be misleading. Accordingly, average per capita income, measured as gross domestic product (GDP) or gross domestic product per capita, is often used as the first approximation; then measures such as income distribution, literacy rates, life expectancy and child mortality are considered separately or as part of the development index (Norton et al., 2010).

The link between sustainable development and food (in)security

In the past there have been many formal attempts to connect concepts of *sustainable development* and *food security*. In this respect, sustainable development is considered to be one of the leading predictors in the fight against poverty and food insecurity. *The report of The Food and Agriculture Organization of the United Nations* (FAO) states that food security and sustainable development are intrinsically linked, and that the management of agriculture and food systems is key to achieving sustainable development goals. That is, hunger starts a vicious circle of reduced productivity, deepens poverty, slows down economic development, degrades resources and prevents more sustainable development (FAO, 2018).

Global awareness of sustainable development has increased significantly over the past few decades. Consciousness of sustainable development has spread alongside a series of successive but overlapping problems such as population growth, environmental change, development inequalities, political fragmentation, instability, and so on. Developed countries are getting richer and using ever-increasing resources, while developing countries, on the other hand, are unable to escape extreme poverty. Consequently, the awareness that we all live on a planet where different elements and processes

are interconnected has gradually developed and therefore all problems in this regard cannot be solved in isolation (Hediger, 2000). This means that if we want to solve the problem of food insecurity, it is certainly necessary to approach it holistically. The concept of sustainable development is neither simple nor uncontroversial, but one of the definitions that best describes it is that it is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs (European Commission, 2011). The concept itself came to the fore in the so-called Brundtland Report from 1987¹ and is embedded within neoclassical economics and in this context represents a compromise between economic growth and the need for environmental protection (United Nations, 1987). Generally, sustainable development means making progress in the economic and social sense, while at the same time preserving the environment. All three factors are equally important and must be established so that the development of one does not have a negative impact on the development of the other. Sustainability (or sustainable development) can also be defined as the ability to maintain the balance of certain processes or states. And more relevant in this context – sustainable development for people is the potential for *long-term welfare maintenance*, which at the same time depends on the prosperity of the natural world and the responsible use of natural resources (Bass et al., 1995). Based on the above objectives, it can be concluded that this concept emphasises the *inseparability of the population, the environment and development*, as well as the need to examine the links between population dynamics and global environmental change (Nevin, 2008).

Over the past few years, sustainability has been considered to be very important for food security. Namely, sustainable development can be understood as a long-term time dimension within the re-positioning of food security, which implies the thesis that sustainability is a *prerequisite* for long-term food security. The environment, and especially the climate situation and the availability of natural resources, are one of the primary conditions for food availability and the preservation of biodiversity (see also Berry et al., 2014). As noted earlier, economic and social growth are key factors for the eradication of poverty and malnutrition. In this sense, without sustainable development, there is no economic or social growth. Food safety for present and future generations is an integral goal of sustainable development. In other words, "the sustainable development of agriculture is the development of agriculture that contributes to improving resource efficiency, strengthening resilience and ensuring social equity/accountability of agricultural and food systems in order to ensure food security for everybody, now and in the future" (HLPE, 2016, p. 29).

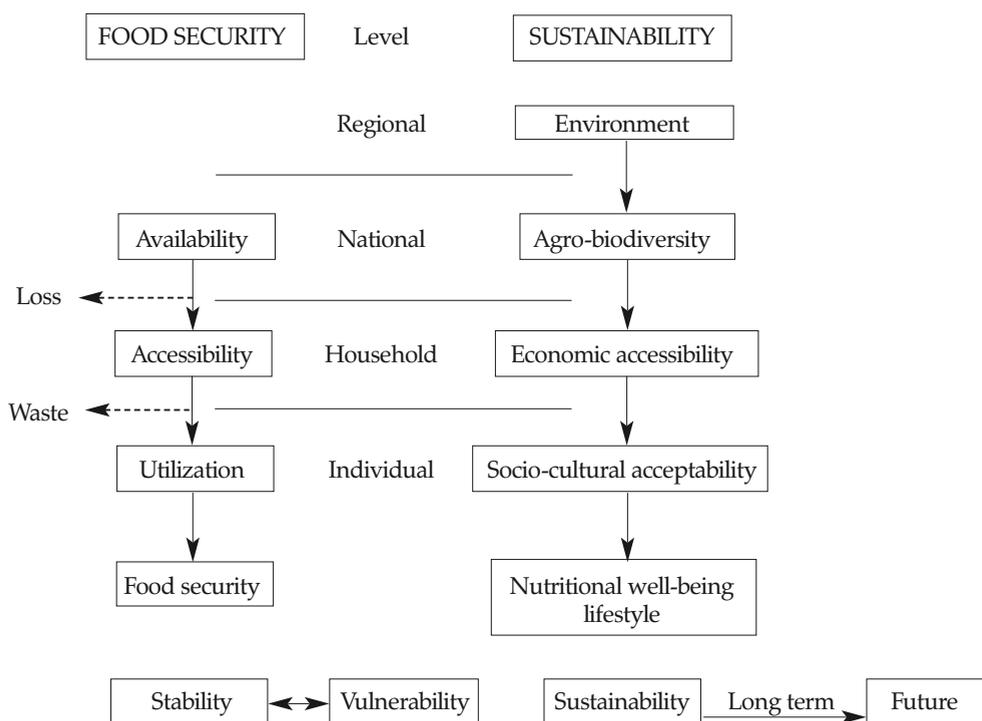


FIGURE 1
Temporal dimension of food security: short-term stability (left side); long-term sustainability (right side) (Berry et al., 2014)

From the abovementioned, we can conclude that there is a very strong correlation between the conditions for achieving universal food security and responsible environmental management, as well as greater fairness in the (re)distribution of food. Poverty, inequality in wealth, social injustice and social exclusion are just some of the fundamental factors that trigger very high levels of food insecurity, poor physical and mental health, and the destruction of the natural environment. For this reason, it is necessary to support (sustainable) development, the implementation and evaluation of economic, social and cultural policies, as well as to promote sustainable agriculture.

The link between migration, agriculture, food security and rural development

In the next part, we will examine the connection between migration movements, crossings from rural to urban areas (and vice versa) and the issue of food security. The importance of this topic is reflected in the fact that "food security for all" has found its support in the Millennium Development Goals (United Nations Development Programme, 2009), recognising the positive contribution of migration and mobility in relation to food security. Namely, migration and mobility should be seen as a form of income diversification that can support innova-

tion, and it is not disputed that migration flows from rural to urban are often a response to economic change (Opitz et al., 2016).

Food (in)security in rural areas can be identified through several factors. Economic factors are reflected primarily in poverty, lack of access to various services and infrastructure that would improve agricultural productivity, lack of access to credit, employment, etc. When we talk about political factors, they are reflected in unequal and limited access to health, education, social protection, etc., which can directly or indirectly affect food security. As a third group of factors, we will single out environmental causes and climate change that can affect farmers, fishermen, livestock, etc., which in turn results in increased food insecurity.

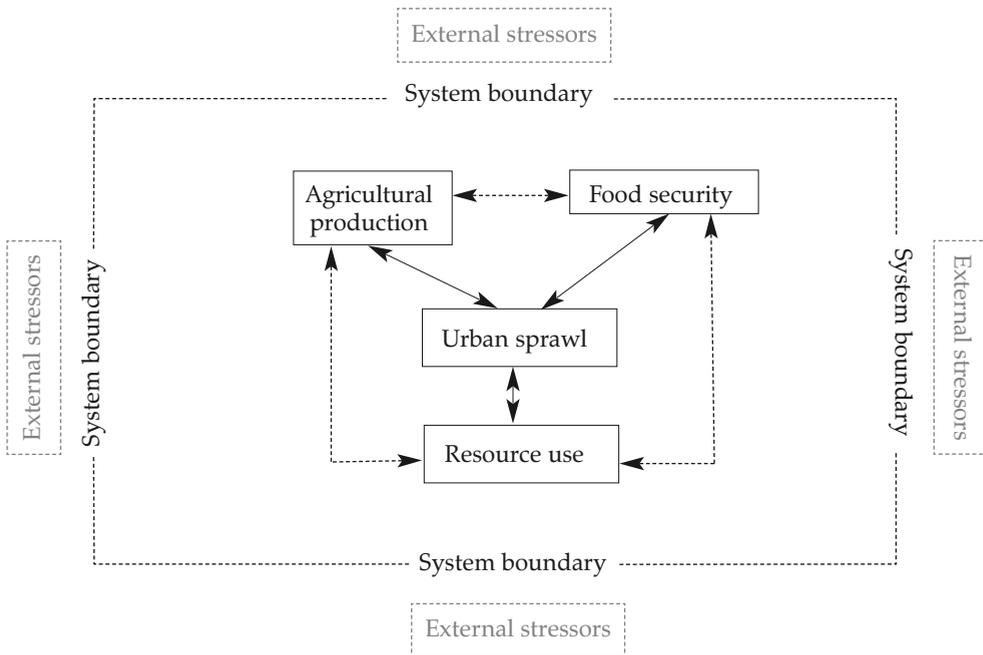


FIGURE 2
Effect of agricultural
production and food
security on urban
population (United
Nations Development
Programme, 2009)

In general, the economy is undergoing a structural transformation – people are moving from agriculture to other sectors of the economy such as production and services, and the labour force is migrating from rural to urban areas. However, the patterns of structural transformation and urbanisation vary from state to state. In this context, it is important to emphasise that some countries encourage the movement of population from urban to rural and agricultural sectors. Internal migration is also an important risk management strategy, primarily due to the risk of food insecurity. Namely, the relationship between food security and migration can be direct, e.g.,

when people do not see sustainable opportunities other than migrating to avoid hunger. On the other hand, the link between food security and migration can also be indirect and can be exemplified by household strategies to deal with income uncertainty and the risks of food insecurity (Sylvia, 2016). Similarly, Matiza et al. (1988) point out that food security can accelerate the decision to migrate, but on the other hand, migrations aimed at alleviating food insecurity are usually short-term. Various studies show that when food security needs are not met, households intensify agricultural strategies, off-farm employment, or resort to migrations to other rural areas, before moving to urban areas for that reason.

MATERIALS AND METHODS

The subject of the analysis includes the countries of the former Yugoslavia (Republic of Serbia, Bosnia and Herzegovina, Croatia, Slovenia, Montenegro and North Macedonia). The collapse of Yugoslavia in the early 1990s led to the era of complex emergencies, which had a significant impact on the food security of these countries. Since in the Republic of Serbia, as well as in other countries of the former Yugoslavia, agriculture makes a significant source of income for a part of the population (Serbia 16%, Croatia 6.23%, North Macedonia 15.72%, Bosnia and Herzegovina 15.71% and Montenegro 8.02% in 2018) (World Bank, 2022), it is necessary to work on overcoming complex and interconnected challenges and obstacles in order to achieve and maintain a desirable level of food safety (Brankov & Lovre, 2017).

The data on the basis of which the research was carried out were collected from the national statistics offices of the countries of the former Yugoslavia and the World Bank database for the period 2006–2018.

In this paper we used multivariate analysis of variance (MANOVA), since in our work we have more than one dependent variable. Dependent variables include the gross domestic product per capita, the poverty rate,² the percentage of undernourished population, urban population growth, rural population growth, while the independent variables are countries of the former Yugoslavia. For economic indicators three predictors are used: GDP per capita, the poverty rate and the percentage of undernourished population. For demographic indicators two predictors are used: urban population growth and rural population growth.

The results of MANOVA should indicate whether there is a difference between countries regarding these variables and which correlate most on the level of food security.

In accordance with the set research problem, the following hypotheses in this paper are:

(H1): Economic indicators determine the level of food security in the countries of the former Yugoslavia.

(H2): Demographic indicators determine the level of food security in the countries of the former Yugoslavia.

RESEARCH RESULTS

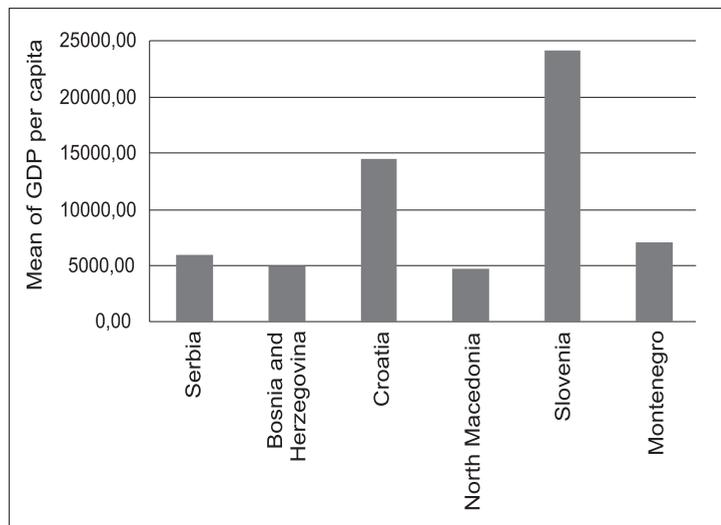
The following section will show the results of descriptive statistics.

	Number of observations	Minimum	Maximum	Mean	Std. Deviation
Gross domestic product per capita (\$)	78	3942.45	26684.21	10203.1834	7107.98157
Urban population annual growth (%)	78	-0.71	1.33	0.2221	0.41164
Rural population annual growth (%)	78	-1.79	0.49	-0.6745	0.52396
Poverty rate	78	4.90	31.10	19.0769	6.09258
Percentage of the undernourished	78	2.39	6.10	3.3744	1.32556

TABLE 1
Descriptive statistics

The results of descriptive statistics show that the average gross domestic product per capita (\$) is \$10203.1834, the average rate of urban population growth is 0.22%; the average rate of rural population annual growth is -0.67%; the average rate of the poor is 19.0769; while the average percentage of undernourished population is 3.37%.

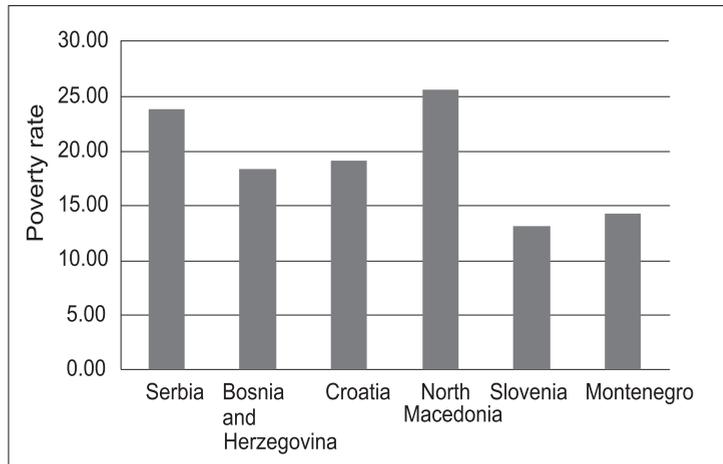
FIGURE 3
Average gross domestic product per capita (\$)



(Agency for Statistics of Bosnia and Herzegovina, 2019; Croatian Bureau of Statistics, 2019; Republic of Slovenia Statistical Office, 2019; Statistical Office of Montenegro – MONSTAT, 2019; State Statistical Office of the Republic of North Macedonia, 2019; Statistical Office of the Republic of Serbia, 2019).

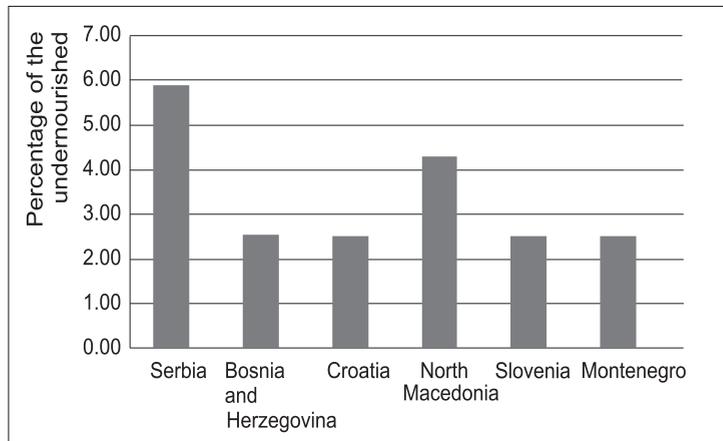
Figure 3 shows that the highest average gross domestic product per capita is recorded in Slovenia and it amounts to \$24112.6315 while the smallest average gross domestic product per capita is recorded in North Macedonia, the value of which is \$4725.7977. After Slovenia, the highest average gross domestic product per capita was recorded in Croatia and it amounted to \$14407.9854. In the Republic of Serbia the average gross domestic product per capita is \$5976.4154, in Montenegro \$7008.0671, and in Bosnia and Herzegovina \$4988.2031.

➤ FIGURE 4
Average poverty rate



(Agency for Statistics of Bosnia and Herzegovina, 2019; Croatian Bureau of Statistics, 2019; Republic of Slovenia Statistical Office, 2019; Statistical Office of Montenegro – MONSTAT, 2019; State Statistical Office of the Republic of North Macedonia, 2019; Statistical Office of the Republic of Serbia, 2019).

➤ FIGURE 5
Average percentage of the undernourished

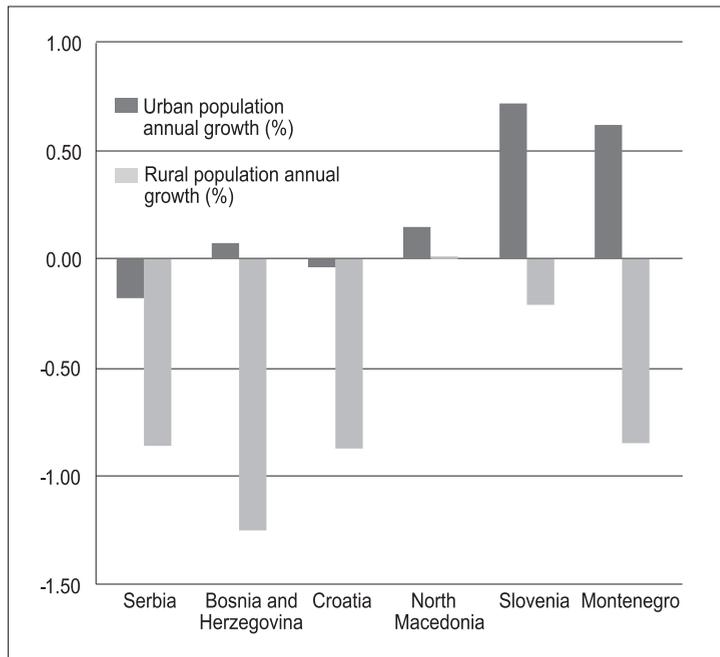


(Agency for Statistics of Bosnia and Herzegovina, 2019; Croatian Bureau of Statistics, 2019; Republic of Slovenia Statistical Office, 2019; Statistical Office of Montenegro – MONSTAT, 2019; State Statistical Office of the Republic of North Macedonia, 2019; Statistical Office of the Republic of Serbia, 2019).

Figure 4 shows that the highest average poverty rate recorded in North Macedonia is 25.60, while the lowest average poverty rate is recorded in Slovenia and is 13.10. In other countries, the average poverty rate in the Republic of Serbia is 23.83, in Croatia 19.15, in Bosnia and Herzegovina 18.41, and in Montenegro 14.36.

Figure 5 shows that the highest average percentage of the undernourished in the Republic of Serbia is 5.89%, while the smallest percentage of the undernourished recorded in Slovenia is 2.50%, in Montenegro 2.50% and in Croatia 2.50%. In the remaining countries of the former Yugoslavia, the average percentage of the undernourished in Bosnia and Herzegovina is 2.56%, while in North Macedonia it is 4.29%.

➔ FIGURE 6
Average percentage of
urban and rural
population annual
growth (%)



(Agency for Statistics of Bosnia and Herzegovina, 2019; Croatian Bureau of Statistics, 2019; Republic of Slovenia Statistical Office, 2019; Statistical Office of Montenegro – MONSTAT, 2019; State Statistical Office of the Republic of North Macedonia, 2019; Statistical Office of the Republic of Serbia, 2019).

Figure 6 shows that the highest average urban population annual growth recorded in Slovenia is 0.71%, while the smallest average urban population annual growth recorded in Serbia is -0.18%. Except the Republic of Serbia, Croatia also has a negative growth of urban population with an average -0.04%. In the remaining countries of the former Yugoslavia, the average urban population annual growth in Bosnia and

Herzegovina is 0.07%, in Montenegro 0.62%, while in North Macedonia it is 0.15%.

Also, Figure 6 shows that in all countries of the former Yugoslavia there is a decrease in the rural population except in North Macedonia, where average rural population annual growth is 0.01%. Negative rates were recorded in other countries of the former Yugoslavia. The smallest average rural population annual growth is recorded in Bosnia and Herzegovina and is -1.25%. In the remaining countries of the former Yugoslavia, the average rural population annual growth in Slovenia is -0.21%, in Montenegro -0.85%, in Croatia -0.88%, while in the Republic of Serbia it is -0.85%.

TABLE 2
Correlations

		1	2	3	4	5
1 Urban population annual growth (%)	Pearson Correlation	1	0.472**	0.417**	-0.470**	-0.560**
	Sig. (2-tailed)		0.000	0.000	0.000	0.000
	N	78	78	78	78	78
2 Rural population annual growth (%)	Pearson Correlation	0.472**	1	0.261*	0.163	0.134
	Sig. (2-tailed)	0.000		0.021	0.154	0.242
	N	78	78	78	78	78
3 GDP per capita	Pearson Correlation	0.417**	0.261*	1	-0.442**	-0.465**
	Sig. (2-tailed)	0.000	0.021		0.000	0.000
	N	78	78	78	78	78
4 Percentage of the undernourished	Pearson Correlation	-0.470**	0.163	-0.442**	1	0.601**
	Sig. (2-tailed)	0.000	0.154	0.000		0.000
	N	78	78	78	78	78
5 Poverty rate	Pearson Correlation	-0.560**	0.134	-0.465**	0.601**	1
	Sig. (2-tailed)	0.000	0.242	0.000	0.000	
	N	78	78	78	78	78

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

(Agency for Statistics of Bosnia and Herzegovina, 2019; Croatian Bureau of Statistics, 2019; Republic of Slovenia Statistical Office, 2019; Statistical Office of Montenegro – MONSTAT, 2019; State Statistical Office of the Republic of North Macedonia, 2019; Statistical Office of the Republic of Serbia, 2019).

Based on the correlation coefficient (Table 2), we can conclude that there is a statistically significant correlation (significance level 0.01 and significance level 0.05) between gross domestic product per capita (\$), urban population, rural population, poverty rate and percentage of undernourished population. The correlation coefficient between gross domestic product per capita (\$) and poverty rate is -0.465, which means that the increase in the gross domestic product per capita (\$) decreases the poverty rate. Similarly, the correlation coefficient between gross domestic product per capita (\$) and per-

centage of undernourished population is -0.442, which means that the increase in the gross domestic product per capita (\$) decreases the percentage of undernourished population. The results show that there is no significant correlation between rural population and poverty rate and percentage of undernourished population. On the other hand, the correlation is significant between both urban population and poverty rate and percentage of undernourished population. The correlation between urban population and poverty rate is -0.560, thus with the increase of urban population growth the poverty rate decreases. The situation is the same when it comes to the relationship between urban population and percentage of undernourished population. The correlation between urban population and percentage of undernourished population is -0.470, therefore, with the increase of urban population growth the percentage of undernourished population decreases. Finally, the correlation coefficient between poverty rate and percentage of undernourished population is 0.601, which means that the increase in the poverty rate raises the percentage of undernourished population.

In addition, the results of *Multivariate Tests* showed that all 4 tests have p values of 0.000, i.e. < 0.05 , which means that there is a statistically significant difference between countries in terms of all variables (gross domestic product per capita (\$), urban population, rural population, rates of poverty and percentage of undernourished population). *Standardised Canonical Discriminant Function Coefficients* showed that the variable that most affects the variation between countries is the gross domestic product per capita.

The results of the survey show:

- the *hypothesis (H1)* is confirmed because higher GDP per capita determines a higher level of food security in the former Yugoslavia countries. GDP is also a variable that affects the variations between countries the most. The lower rate of the poor points to a higher level of food security in the former Yugoslavia countries. With the increase in GDP per capita (\$), the poverty rate declines. With the increase in GDP per capita (\$), the percentage of undernourished population declines.

- the *hypothesis (H2)* is confirmed, as with the increase of urban population the poverty rate and percentage of undernourished population decreases. On the other hand, the results show that there is no significant correlation between rural population, poverty rate and percentage of undernourished population. It is important to emphasise that the majority of agriculture production happens in rural areas in the former Yugoslavia countries.

DISCUSSION AND CONCLUSION

The results obtained by analysis of available data show that the highest level of food security from all the former Yugoslavia countries was achieved in Slovenia. This is the consequence of the highest GDP, the lowest average poverty rate, the lowest percentage of the undernourished, and the highest average urban population annual growth, compared to other countries of the former Yugoslavia. After Slovenia, the highest average GDP per capita was achieved in Croatia. However, there is still a high average poverty rate in this country. In Croatia there are a large number of materially vulnerable or poor citizens than in the economically more developed countries of the European Union (Knežević et al., 2017). The lowest average GDP per capita was recorded in North Macedonia; also, this country has the highest poverty rate. Serbia has a high average rate of the poor and percentage of undernourished. Also, Serbia has a lower average GDP per capita, which significantly affects the rates of undernourishment and poverty of population. As stated by Gerovska-Mitev (2015), the quantitative data on poverty and social exclusion in Serbia, North Macedonia, and Croatia imply a serious need for undertaking a comprehensive review of policies and measures that will improve the countries' current high poverty levels. Montenegro and Bosnia and Herzegovina have a lower average GDP per capita, similar rates of undernourishment, while the poverty rate is higher in Bosnia and Herzegovina.

If demographic indicators are observed, a total population decline has been recorded in the majority of countries of the former Yugoslavia. Slovenia has the highest average urban population annual growth, while the smallest average urban population annual growth is recorded in Serbia. Except for Serbia, Croatia also has a negative growth of urban population, while the remaining countries of the former Yugoslavia, have a similar average urban population annual growth. As far as the rural population is concerned, in all countries of the former Yugoslavia there is a decrease in the rural population except in Macedonia. It is significant that poverty is a predominantly rural phenomenon, due to limited access and distance from bigger urban areas. The rural population usually has a lower level of education and live in larger households than urban residents, and both of these characteristics are correlated with poverty. In addition, the rural sector is growing slowly and the wages in rural agricultural sectors are low, as opposed to the rapid growth of the sector in urban areas where wages are higher. So, countries with more urban populations are also more food secure.

Based on all of the above, it can be concluded that the failure to eliminate poverty, hunger and undernourishment

present a serious ethical, economic and stability problem in both developing and the developed countries. The nutritional status of the population is an input in the process of economic development, as well as the result of this process (Hod-dinott, 2016). Therefore, the reduction of poverty and under-nourishment leads to an improvement in the nutritional status of the population, which increases the likelihood of labour productivity growth and contributes to a better resolution of individual and social challenges. Thus, by maintaining an adequate nutritional status of the population, reduced under-nourishment and poverty become an economic investment in the future of the country.

The global food system, especially its human aspect, monitors social injustice and the negligence of decision-makers to address poverty and food insecurity issues with a multidimensional and systematic approach. The failure to explicitly consider the impact of international policies on institutions of national policies slows down the process of globalisation and contributes to social injustice and armed conflict. Hunger is triggered by a vicious circle of reduced productivity, deepening poverty, slowing down economic development, degrading resources and the prevention of sustainable development. Since maintaining food security is the basic responsibility of each state, it is necessary to develop and implement programmes and policies that will be aimed at reducing poverty and undernourishment in line with the UN SDGs.

The theoretical and practical contribution of research

The data obtained can serve as a starting point for further longitudinal research of factors that affect the number of poor and malnourished. In addition, the study also allows comparison and monitoring of indicators of trends with other countries.

When it comes to the practical input, the obtained results can serve different government agencies in addressing the problems by designing programmes, strategies, policies and interventions to eradicate poverty and food insecurity. By looking at the experience of the countries of the former Yugoslavia, it is possible to propose measures for the creation of programmes and policies that will be directed towards reducing the number of poor and malnourished in the future.

Limitations of the research

The potential limitations of the research stem from the fact that this research does not cover all the factors that may affect the level of poverty and malnutrition in the countries of the former Yugoslavia. Also, the analysed countries of the former Yugoslavia used different methodology before the introduction of EU-SILC.

NOTES

¹ The Brundtland Report, also called "Our Common Future", was published in 1987 by the World Commission on Environment and Development. It presents the concept of sustainable development and describes how it can be achieved. Under the auspices of the UN, the project investigated the causes of environmental degradation, as well as the link between social equity, economic growth and environmental issues. The *Brundtland Report* is also known for developing political solutions that integrate the three aforementioned areas.

² Poverty rate is measured through the % of people under the poverty line. Poverty measurement in the analysed countries of former Yugoslavia was different before the introduction of EU-SILC.

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Učinci siromaštva na razinu sigurnosti hrane u zemljama bivše Jugoslavije

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U radu se ispituju čimbenici koji utječu na razinu sigurnosti hrane u bivšoj Jugoslaviji (Srbija, Bosna i Hercegovina, Hrvatska, Slovenija, Crna Gora i Makedonija). Podaci na temelju kojih je provedeno istraživanje prikupljeni su iz nacionalne statistike i baze podataka Svjetske banke za razdoblje od 2006. do 2018. godine, a kao statistička metoda upotrijebljena je multivarijantna analiza varijance (MANOVA). Dobiveni rezultati pokazuju da postoji statistički značajna korelacija između bruto domaćega proizvoda po stanovniku (\$), rasta urbanoga stanovništva, rasta ruralnoga

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stanovništva, postotka pothranjenoga stanovništva i stope siromaštva. Razlike među zemljama u pogledu ovih čimbenika upućuju na razinu sigurnosti hrane.

Ključne riječi: sigurnost hrane, siromaštvo, održivi razvoj, ekonomski pokazatelji, demografski pokazatelji



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