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COMPARATIVE OVERVIEW OF THE STATE OF AGRICULTURAL INSURANCE IN SERBIA AND CROATIA

Uporedni prikaz razvijenosti osiguranja poljoprivrede u Srbiji i Hrvatskoj

Abstract

The aim of this paper is to assess the level of agricultural insurance development for family agricultural farms in Serbia and Croatia. To that end, a comparative analysis of the characteristics of agricultural insurance and of the level of its development for family agricultural farms was conducted for these two countries, which were taken as comparative examples due to significant similarities relevant for the subject of research. According to the categorization of the Organization for Economic Cooperation and Development (OECD), the territories of both countries are dominated by rural areas which are, according to the structure of the agricultural entities, dominated by family agricultural farms, while agriculture has approximately the same share in gross domestic product (GDP) of both countries. The author analyzes the development of agricultural insurance from 2006 to 2018, with family agricultural farms that can be considered micro enterprises important for the growth of the insurance industry in the observed countries. Based on the conducted research, the author concludes that in both Serbia and Croatia, agricultural insurance of family agricultural farms is underdeveloped and that there are significant opportunities for the growth of the insurance industry in this market segment. In 2018, only 3.99% of all family agricultural farms in Serbia were insured, with this percentage being 4.26% in Croatia. Bearing in mind that supply is satisfactory, that solvency should not be viewed as a problem, as is often done, given there is significant subsidization of agricultural insurance premiums, it will be necessary, before all, to develop demand.

Keywords: *agricultural insurance, development, family agricultural farms, Serbia, Croatia.*

Sažetak

Cilj rada je procena nivoa razvijenosti poljoprivrednog osiguranja kod porodičnih poljoprivrednih gazdinstava u Srbiji i Hrvatskoj. U tu svrhu realizovana je uporedna analiza karakteristika poljoprivrednog osiguranja i nivoa njegove razvijenosti kod porodičnih poljoprivrednih gazdinstava u ove dve države, koje su uzete kao uporedni primeri zbog značajnih sličnosti važnih za predmet istraživanja. Na teritoriji obe države, prema kategorizaciji Organizacije za ekonomsku saradnju i razvoj (OECD), dominiraju ruralna područja, u strukturi poljoprivrednih subjekata dominiraju porodična poljoprivredna gazdinstva, a poljoprivreda ima približno isto učešće u bruto domaćem proizvodu (BDP). Autorka analizira razvijenost osiguranja poljoprivrede u periodu od 2006. do 2018. godine kod porodičnih poljoprivrednih gazdinstava koja se mogu smatrati mikro preduzećima značajnim za rast industrije osiguranja u posmatranim državama. Autorka na osnovu realizovanog istraživanja zaključuje da je i u Srbiji i u Hrvatskoj nerazvijeno osiguranje poljoprivrede kod porodičnih poljoprivrednih gazdinstava i da postoje značajne mogućnosti za rast industrije osiguranja u ovom segmentu tržišta. U 2018. godini u Srbiji je bilo osigurano samo 3,99%, a u Hrvatskoj 4,26% od ukupnog broja porodičnih poljoprivrednih gazdinstava. Imajući u vidu da je ponuda zadovoljavajuća, da platežnu sposobnost ne bi trebalo posmatrati kao problem, kako se to često čini, jer postoji značajno subvencionisanje premija poljoprivrednog osiguranja, potrebno je, pre svega, razviti tražnju.

Ključne reči: *osiguranje poljoprivrede, razvijenost, porodična poljoprivredna gazdinstva, Srbija, Hrvatska.*

Introduction

Property insurance represents the protection of property interests of natural persons and legal entities against the occurrence of risks, i.e., insured perils, at the expense of insurance funds formed by collecting such premiums [48, p. 9]. There are a number of forms of insurance that are most commonly grouped as life and non-life insurance [30, pp. 65-73]. The subject of analysis in this paper is agricultural insurance as a type of non-life insurance, i.e., a type of property insurance.

Agricultural insurance is divided into crop insurance and livestock insurance. Crop insurance has existed for more than three centuries, more precisely since 1719, when crop insurance against hail was introduced in Germany. Today, globally, crop insurance accounts for about 90% of total agricultural insurance premiums [21, p. 11]. Crop insurance is one of the riskiest forms of insurance, thus insurance protection is offered for only a limited number of risks. Risks are most often divided into three main groups: natural, social and economic [56, p. 10]. According to [24, p. 9], at the present time there is a growing need to insure crop production against climate changes, and insurance programs have an important place in the protection against the dangers associated with climate change, such as floods or droughts. However, despite the great social importance, agricultural insurance, i.e., crop insurance, in many countries, is only in the initial phase of development due to numerous difficulties that hinder its financial viability [2, pp. 31-32].

According to research by a group of authors, a farmer's decision to opt for crop insurance is influenced by a number of factors, the most important of which is risk awareness and the competitive impact of other risk management tools, while farmers who have a higher level of awareness of the risks of falling yields are more likely to enter into insurance contracts [66, p. 108]. The size of an agricultural holding has a positive correlation to a decision to purchase a policy, because it is often too expensive to do so for smaller holdings [5, p. 480]. According to one opinion, older and more educated farmers are more likely to purchase insurance [6, p. 353]. Based on the opinion of numerous authors, the costs of agricultural insurance are negligible in comparison to the benefits it provides to policyholders - agricultural producers [29, pp. 149-159]. According to research results [49, p. 177], insurance costs are very low and on average account for 1.5% to 2% of total agricultural production costs. According to research results from a group of authors, "the main factors affecting demand for crop insurance in Serbia are connected with financial resources available to farmers and their awareness on risk and insurance" [71, p. 1119].

There is an almost unanimous opinion in literature that due to the specificity, complexity and high administrative costs, as well as significant risks that accompany crop production and often cause enormous damage, it is necessary to manage this type of insurance with state support and intervention, which often takes the form of insurance premium subsidies. In developed countries, governments subsidize crop insurance to reduce farm income instability, which is caused by reduced yields due to a number of risks that accompany crop production [20, p. 370]. In general, on a global level, there is a direct correlation between state involvement and the level of development of crop insurance [3, p. 28]. In 2004, the average subsidies in the European Union were 32%, with large differences between countries [23, p. 725].

In recent years, due to the emergence of new animal diseases, the need for livestock insurance has been growing. According to [25, p. 292], for full economic protection, a stronger connection between farmers, insurance companies and the state is required in order to create an integrated risk management system in livestock breeding. "Based on an analysis carried out by numerous researchers, it can be concluded that livestock insurance, i.e., animal insurance, viewed on a global level, is growing at a slower rate than crop insurance, i.e., crop and fruit insurance [1, p. 12].

In Serbia and Croatia, almost all agricultural companies have economic protection for their production. The reason for that is the fact that both countries originated from Yugoslavia, where the law mandated that agriculture must be insured by legal entities. Chronologically, after the Second World War, compulsory insurance of crops and fruits grown on state-owned agricultural land, as well as

livestock on state-owned farms, was in force [67]. The order defining against which risks an economic organization was required to insure its fixed assets, working capital and common consumption assets, was issued in 1958 [68]. The Law on Compulsory Insurance of Property and Persons prescribed compulsory insurance of socially-owned assets, including crops and fruits, which were grown on socially-owned agricultural land, i.e., livestock bred on socially-owned property [69]. With the basic law on insurance and insurance organizations, compulsory insurance of crop production and livestock in the social sector was abolished [70]. Having in mind the above, it can be concluded that compulsory production insurance is a tradition for agricultural companies, which has been maintained, in both countries, up to the present.

According to current literature, agricultural insurance of family agricultural farms is underdeveloped in both countries. Based on an exhaustive and comprehensive analysis, the authors [22, p. 15] conclude that the possibilities of the insurance market in the Republic of Serbia are greater than the current level of development. According to research results [53, p. 218], in Serbia during the 2006-2014 period, agricultural insurance was most developed in 2014, but even then only 4% of the total number of agricultural holdings were insured, and the insurance covered only 15% of total arable land. Insurers estimate that in 2014, only 4% of arable land in Croatia was insured, which is seven times less than the average of the 15 oldest members of the European Union [45]. Croatia has an unfavorable structure of agricultural farms with very small family agricultural farms, and the small size of the lot is one of the reasons for the inefficiency of agricultural production [73, p. 6]. In Croatia, despite significant subsidies for agricultural insurance premiums, only 7-8% of the total number of agricultural holdings insures their production [72]. In Serbia, the insurance of animal, i.e., livestock production, is even less developed when compared to crop insurance [74, p. 73]. The situation in Croatia is similar, and according to one research, most of the surveyed farmers do not insure their cattle or do so from time to time, mainly when required by loan terms, i.e., when insurance is required as a guarantee [44, p. 809].

Methodological approach

The aim of this paper is to assess the level of agricultural insurance development for family agricultural farms in Serbia and Croatia. To that end, a comparative analysis of the characteristics of agricultural insurance, and the level of its development for family agricultural farms, was conducted for these two countries, which were taken as comparative examples due to significant similarities important for the subject of research. According to the categorization of the Organization for Economic Cooperation and Development (OECD), the territories of both countries are dominated by rural areas which are, according to the structure of the agricultural entities, dominated by family agricultural farms, while agriculture has approximately the same share in gross domestic product (GDP) of both countries.

Based on the OECD categorization, 85% of the territory of Serbia is considered a rural area, while in Croatia it is as much as 91.6% of the total territory. The share of agriculture in the formation of gross domestic product (GDP) in 2018 in Serbia was 6.3% [65], and 4.5% in Croatia [26]. In both countries, the structure of agricultural subjects is dominated by family agricultural farms. In Serbia, they make up 99.7% [57], and in Croatia 96.8% [26] of the total number of agricultural holdings. The subject of research in this paper is not the state of the development of agricultural insurance in agricultural companies, i.e., legal entities, considering that they are beneficiaries of agricultural insurance, almost entirely in both countries, in accordance with an inherited tradition from the former common state.

This paper uses analysis, synthesis, descriptive and comparative methods, as well as descriptive statistics. The sources of data are statistical reports, including reports from relevant authorities and institutions in both countries.

Research results

In order to implement research, we analyzed, by comparative method, potentials, conditions and level of development of agricultural insurance in Serbia and Croatia.

Potentials for the development of agricultural insurance

Potentials of primary importance for the development of agricultural insurance, in accordance with the defined goal of research, are: (a) the total number of family agricultural farms (FAF); (b) the area of utilized agricultural land used by family agricultural farms; (c) the average size of the agricultural holding of the family agricultural farms; (d) the structure of the utilized agricultural area; (e) livestock fund; (f) the structure of farmers by age and educational level.

As stated in the section on methodology, the subject of research is the level of development of agricultural insurance for family agricultural farms in Serbia and Croatia. The number of family agricultural farms (FAF), their share in the total number of agricultural holdings (AH), the share of the area used by FAF in the total area of arable agricultural land, as well as the average size of FAF holdings in 2018, in both countries, have been presented in Table 1.

Table 1: Total number of FAF, used agricultural land and average size of holdings in 2018

In 2018	CROATIA	SERBIA
Number of AGRICULTURAL HOLDINGS (AH)	167,676	564,541
Number of FAMILY AGRICULTURAL FARMS (FAF)	162,248	562,869
Participation of FAF in the total number of AH	96.8%	99.7%
Used agricultural land	1,133,851.8 ha	3,475,894 ha
Area used by FAF	862,302.9 ha	2,916,125 ha
Share of areas used by FAF in the total area of used agricultural land	76.1%	83.9%
Average property size of FAF	5.3 ha	5.18 ha

Source: [26], [57].

Based on the data presented in Table 1, it can be concluded that in both countries family agricultural farms (FAFs) dominate in the structure of agricultural holdings (AH). They make up 96.8% in Croatia and 99.7% in Serbia out of the total number of agricultural holdings. We conclude that in both countries, family agricultural farms have approximately the same importance in the structure of agricultural farms.

The share of agricultural land used by FAFs in the total area of used agricultural land is dominant in both countries; in Croatia it is 76.1%, and in Serbia 83.9%. The average size of FAFs in Croatia is 5.3 ha, and in Serbia 5.18 ha. Based on the above data we can conclude: (a) that in both states, FAFs have approximately the same significance in terms of the "use" of total available agricultural land; (b) that in both states, FAFs have approximately the same economic strength, in terms of the average size of the agricultural holding.

Table 2: Potentials for the development of crop insurance in 2018

Structure of used agricultural land	CROATIA	SERBIA
• arable land and gardens	54.1%	73.98%
• meadows and pastures	40.9%	19.47%
• orchards	2.2%	5.26%
• vineyards	1.4%	0.59%
• vegetable gardens	0.1%	-
• olive groves	1.3%	-
• nurseries	-	0.04%
• other plantations	-	0.02%
• house gardens	-	0.64%

Source: [26], [64].

Both analyzed countries have a significant potential for the development of crop insurance, as well as livestock insurance. The structure of agricultural land, as well as the structure of livestock is similar (Tables 2 and 3).

Table 3: Potentials for the development of livestock insurance in 2018

Structure of livestock production in 2018	CROATIA	SERBIA
• cattle	414,125	881,152
• pigs	1,049,123	3,266,102
• sheep	636,294	1,799,814
• goats	80,064	218,397

Source: [26], [62].

When looking at the age structure of farmers, in Croatia 37.7% are older than 65 years, and in Serbia 42.5% of the total number of farmers are of this age. In both countries, about 11% are younger than 44 years of age. From the aspect of the educational level, 33.1% of farmers in Croatia have a secondary education (SSE), while this number in Serbia equals 45.2%. About 6% of the total number of farmers in both countries have a college or university degree (UD). In 2018, 21.1% of the total number of farmers in Croatia had no more than a primary school education, and in Serbia it is estimated that 48.6% of farmers have only a primary education, or almost twice as many (Table 4).

Table 4: Structure of farmers by age and educational level in 2018

Structure of farmers	CROATIA	SERBIA
• owners of family agricultural farms (FAF) over 65 years of age	37.7%	42.5%
• FAF owners under 44 years of age	11.5%	11.8%
• FAF owners who have only a primary school education	21.1%	48.6%
• FAF owners who have a SSE	33.1%	45.2%
• FAF owners who have a UD	6.5%	6.0%

Source: [26], [60].

Based on the data presented in Table 4, it can be concluded that in both countries, the structure of farmers is dominated by people over 65, as well as farmers with a secondary education (SSE). These data are not encouraging given that education is crucial for the development of agricultural insurance, and it is natural that younger people are more willing to learn compared to older farmers.

Conditions for the development of agricultural insurance

In order to develop agricultural insurance, quality conditions are needed, which include: (a) state support in the form of subsidies for insurance premiums; (b) a quality offer on the agricultural insurance market.

Insurance premium subsidies

Since 2006, subsidies in Serbia have been paid from the state (agrarian) budget to support farmers in applying for insurance. The funds are paid in the form of recourse (refund) for the entire paid amount for the agricultural insurance premium. The return on funds was initially 30%, but has risen to 40% of the premium amount since 2008. As of 2019, farmers who work under difficult business conditions are entitled to a refund up to 45%, and those whose production is located in five districts (Moravica, Zlatibor, Kolubara, Šumadija or Podunavlje) that are particularly vulnerable to weather disasters, have the right to up to 70% recourse on insurance premiums. Local governments can also participate in the recourse of the remaining part of agricultural insurance premiums, so that there are municipalities in which farmers can fully insure their production at the "expense of the state". In accordance with the current Rulebook [50], only registered agricultural holdings have the right to premium recourses and can submit only one claim per year, which may include one or more types of incentives, on the basis of which they can collect up to 2.5 million dinars.

Until Croatia's accession to the European Union in 2013, farmers were entitled to subsidies for agricultural insurance premiums, 25% from the state budget and usually another 10% from the local government. Since 2014, farmers have been entitled to co-financing up to 65% of the value of the annual crop, livestock and plant insurance policy, based on a co-financing model from the European Agricultural Fund for Rural Development (EAFRD) [45]. Since 2016, Croatia has been implementing Measure 17 "Risk management", and Submeasure 17.1. "Crop, animal and plant insurance" from the Rural Development Programme of the Republic of Croatia for the 2014-2020 period. In 2018, the Ministry of Agriculture introduced changes to the implementation of this submeasure in order to increase the interest of farmers in insurance. Subsidies have been increased and are now paid in the amount of up to 70% of the insurance premium. They participate in the payment of these subsidies with 85% from funds from the budget of the European Union, and with 15% from funds from the budget of the Republic of Croatia. The maximum amount of subsidies per user is EUR 75,000 per year. Since 2018, the way of submitting the claim for the payment of subsidies has also changed, i.e., the user was required to pay the entire insurance premium before submitting the claim. Now, under the insurance contract, farmers pay 30% of the insurance premium, and after that, they submit the claim for the payment of subsidies to the Paying Agency for Agriculture, Fisheries and Rural Development. The agency carries out the administrative processing of applications, and when it is determined that the necessary conditions have been met, the remaining 70% of the insurance premium is paid to the account of the insurance company, which closes the obligation of the user - farmer [51]. According to data from the Ministry of Agriculture of the Republic of Croatia, in 2019, 9,347 claims for subsidies were submitted by farmers, which is almost four times more than during 2016. This confirms that these changes have had a positive impact on the development of agricultural insurance [27].

Offer on the agricultural insurance market

There are five insurance companies operating on the agricultural insurance market of Serbia, four of which have a dominant share. Farmers can insure their production against basic and additional risks. The basic insurable risks for plant production include hail, fire and lightning strikes. The risk from hail is the most represented both in terms of frequency and severity of consequences. It is estimated that in Serbia, 90% of crop insurance is hail risk insurance. Additional insurable risks of plant production are storms, floods, spring and autumn frosts [52, p. 397]. Risks (perils) that endanger animals can be classified into two groups: diseases and accidents. As a consequence of their effect, there is damage from the death of animals, injuries, forced slaughter or forced killing, treatment costs and other things, all of which can be secured with insurance protection [72, p. 73]. According to research results [54, p. 91], there is a satisfactory offer for crop insurance on the Serbian agricultural insurance market, which includes insurance against the most significant risks and all for the purpose of providing insurance possibilities from current experience on foreign markets. It is necessary to have a greater offer of insurance against drought risk and loss of income as, at the moment, this insurance is only offered by one insurer. In addition, on the Serbian agricultural insurance market, there is a satisfactory offer for livestock insurance against the most significant risks for livestock production, and the development of this insurance requires, in addition to quality information and education of agricultural producers, an increase in the livestock fund [55, p. 96]. Therefore, in order to develop agricultural insurance in Serbia, it is necessary to stimulate demand.

There are four insurers operating on the Croatian agricultural insurance market, one of which has an almost 70% market share [72]. Crop insurance covers the risks of hail, fire and lightning strikes and, in addition to these basic coverages, insurance against the risk of storms, spring frosts, salt sediments or floods can be contracted [46]. On the agricultural insurance market, there is a growing demand for insurance against the risk of drought, which is increasingly present under conditions of growing climate change. As many as 80% of farmers believe that without covering this risk it makes no sense to insure agricultural production. On the other hand, for insurers insuring against this risk this is unacceptable under conditions where only 0.5% of agricultural holdings have irrigation systems. In Croatia, for now, only one insurer offers drought risk insurance [45]. Domestic insurance covers damage caused by death, emergency slaughter or euthanasia due to disease or accident, for 16 different species of domestic animals. In addition to basic coverage, additional coverage can be contracted [47].

Table 5: Comparative overview of agricultural insurance policies in Serbia and Croatia, 2006-2018

	SERBIA					CROATIA				
Year	Number of crop insurance policies (PPIP)	% in number of AGIP	Number of livestock insurance policies (AIP)	% in number of AGIP	Number of agricultural insurance policies (AGIP)	Number of crop insurance policies (PPIP)	% in number of AGIP	Number of livestock insurance policies (AIP)	% in number of AGIP	Number of agricultural insurance policies (AGIP)
2006	9,351	80	2,278	20	11,629	12,421	66	6,372	34	18,793
2007	10,305	80	2,582	20	12,887	11,982	70	5,203	30	17,185
2008	15,186	87	2,250	13	17,436	15,034	76	4,810	24	19,844
2009	10,165	85	1,807	15	11,972	23,726	85	4,029	15	27,755
2010	11,172	90	1,212	10	12,384	18,461	84	3,488	16	21,949
2011	11,548	89	1,487	11	13,035	18,238	87	2,818	13	21,056
2012	14,871	74	5,259	26	20,130	16,565	87	2,370	13	18,935
2013	18,658	82	4,167	18	22,825	17,535	89	2,191	11	19,726
2014	19,768	78	5,466	22	25,234	14,625	88	1,998	12	16,623
2015	27,652	83	5,564	17	33,216	13,315	89	1,620	11	14,935
2016	28,749	84	5,313	16	34,062	20,596	94	1,385	6	21,981
2017	30,346	89	3,642	11	33,988	22,359	94	1,367	6	23,726
2018	39.212	90	4,506	10	43,718	39,299	96	1,813	4	41,112
Total	**246,983**	**84**	**45,533**	**16**	**292,516**	**244,156**	**86**	**39,464**	**14**	**283,.620**

Source: [7-19], [31-43].

The level of development of agricultural insurance

The level of development of agricultural insurance in Serbia and Croatia has been analyzed for the 2006-2018 period based on: (a) number of agricultural insurance policies; (b) total agricultural insurance premiums, i.e., crop insurance premiums and livestock insurance premiums; (c) share of total agricultural insurance premiums in total non-life insurance premiums; (d) number of family agricultural farms eligible for agricultural insurance premium subsidies.

A comparative overview of agricultural insurance policies in Serbia and Croatia, for the 2006-2018 period, has been presented in Table 5. Based on the presented data, it can be concluded that the total number of concluded insurance policies for plant production during the observed period in Serbia was 246,983, and in Croatia it was 244,156. The total number of concluded livestock insurance policies during the observed period was 45,533 in Serbia, and 39,464 in Croatia. The average share of the number of crop insurance policies in the total number of agricultural insurance policies during the analyzed period in Serbia was 84%, and in Croatia 86%. The average share of the number of livestock insurance policies in the total number of agricultural insurance policies during the 2006-2018 period in Serbia was 16%, and in Croatia 14%.

The total number of agricultural insurance policies in Serbia had a growth trend from 2006 to 2008, followed by a continuous decline until 2012. Given that subsidies for agricultural insurance premiums in 2008 increased from 30% to 40%, it can be concluded that they are not a decisive factor for the development of agricultural insurance. Since 2012, there has been an increase in the total number of agricultural insurance policies with a slight decline only in 2017.

The total number of agricultural insurance policies in Croatia experienced significant oscillations during the analyzed period. A continuous decline was recorded in the period from 2009 to 2012 and from 2013 to 2015, with a continuous growth since then. Bearing in mind that in 2014, with the accession of Croatia to the European Union, subsidies for agricultural insurance premiums increased significantly, from 25% to 65%, this did not significantly affect the growth of insurance demand. However, the total number of agricultural insurance policies grew by as much as 73% in 2018 compared to the previous 2017. In Croatia, from 2018, subsidies were increased, amounting to 70% of agricultural insurance premiums; however, as of this year, the policy of paying subsidies has changed. We believe that this was decisive for the growth of demand. In particular, the obligation of farmers to pay the entire premium before submitting the claim for the payment of the subsidy has been abolished.

Based on the conducted analysis, it can be concluded that in both countries there are significant opportunities for the growth of the agricultural insurance market, given that the number of family agricultural farms in 2018 was:

(a) 562,869 in Serbia, with a total of only 43,718 agricultural insurance policies concluded in that year;
(b) 162,248 in Croatia, with only 41,112 agricultural insurance policies concluded in that year.

Table 6: Comparative overview of crop insurance premiums in Serbia and Croatia, 2006-2018

Year	SERBIA		CROATIA	
	Total crop insurance premium in euros at the official middle exchange rate at the end of the year	% in the total agricultural insurance premium	Total crop insurance premium in euros at the official middle exchange rate at the end of the year	% in the total agricultural insurance premium
2006	7,742,924	60	8,692,484	50
2007	9,483,809	59	9,642,694	50
2008	12,473,990	68	14,493,015	55
2009	7,787,520	66	15,006,435	54
2010	7,524,991	74	13,000,779	52
2011	9,259,534	78	14,443,285	53
2012	9,904,853	72	13,421,952	53
2013	13,118,383	79	13,256,969	55
2014	13,259,942	78	11,763,668	59
2015	13,753,578	76	10,362,215	53
2016	14,959,987	70	9,596,460	51
2017	17,636,021	70	10,819,778	53
2018	19,406,944	68	16,842,566	57
Total	156,312,476	71	161,342,300	54

Source: [7-19], [31-43].

A comparative overview of the total amount of crop insurance premiums in Serbia and Croatia during the 2006-2018 period has been presented in Table 6. By analyzing the presented data, it can be concluded that, although in both countries during the observed period the average number of crop insurance policies has approximately the same share in the total number of agricultural insurance policies (Table 5), the average share of total crop insurance premiums in total agricultural insurance premiums is different. In Serbia it is 71%, and in Croatia it is 54%.

The analysis of the data presented in Table 6 shows that in Serbia during the analyzed period, total insurance premiums for crop production recorded mainly a growth trend, more precisely from 2006 to 2008 and from 2011 to 2018. The decline in the value of total crop insurance premiums was recorded only in the period from 2008 to 2010. The percentual share of total crop insurance premiums in total agricultural insurance premiums was the highest in 2013, when it amounted to 79%. In Croatia, total crop insurance premiums experienced a growth trend from 2006 to 2009, from 2010 to 2011, and from 2016 to 2018. The percentual share of total crop insurance premiums in total agricultural insurance premiums was the highest in 2014, when it amounted to 59%. During the analyzed period, total crop insurance premiums in Serbia amounted to EUR 156,312 million, and in Croatia to EUR 161,342 million, i.e., approximately the same values for both countries.

A comparative overview of the total premium amount of livestock insurance premiums in Serbia and Croatia during the 2006-2018 period has been presented in Table 7. By analyzing the presented data, it can be concluded that, although in both countries during the observed period the average number of livestock insurance policies has approximately the same share in the total number of agricultural insurance policies (Table 5), the average share of total premiums for livestock insurance premiums in total agricultural insurance premium is significantly different. In Serbia, it is 29%, and in Croatia it is 46%. This can be interpreted in two ways: that domestic livestock insurance is more expensive in Croatia than in Serbia or that the scope of risk coverage in domestic livestock insurance in this country is higher.

The analysis of the data presented in Table 7 shows that in Croatia during the analyzed period, total insurance premiums for domestic livestock mostly had a downward trend, while an upward trend was recorded only in the period from 2006 to 2009, from 2010 to 2011, from 2014 to 2015, and from 2016 to 2018. The percentual share of total domestic livestock insurance premiums in total agricultural insurance premiums was the highest in 2006, when it amounted to 50%. In Serbia, total insurance premiums for domestic livestock during the analyzed period had the longest continuous growth trend in the period from 2013 to 2018. In Serbia, the percentual share of total domestic livestock insurance premiums in total agricultural insurance premiums was the highest in 2007, when it amounted to 41%. During the analyzed period, in Serbia total insurance premiums for domestic livestock amounted to EUR 65,085 million, while in Croatia they amounted to EUR 139.647 million, i.e., almost twice that of Serbia.

A comparative overview of the share of total agricultural premiums in total non-life insurance premiums in Serbia and Croatia during the 2006-2018 period has been presented in Table 8. Based on the presented data, we can conclude that, in Serbia during the analyzed period, the cited participation experienced significant oscillations while continuous growth was recorded only from 2010 to 2014, and from 2015 to 2018. In Croatia, the share of total agricultural insurance premiums in total non-life insurance premiums during the analyzed period generally had a declining trend. Specifically, the downward trend was recorded in the period from 2011 to 2016, while the upward trend was recorded in the period from 2016 to 2018. Total agricultural insurance premiums in Serbia from 2006 to 2018 amounted to EUR 221,398 million, and in Croatia they were about 36% higher and amounted to EUR 300,990 million. However, the difference between total

Table 7: Comparative overview of livestock insurance premiums in Serbia and Croatia, 2006-2018

Year	SERBIA		CROATIA	
	Total livestock insurance premium in euros at the official middle exchange rate at the end of the year	% in the total agricultural insurance premium	Total livestock insurance premium in euros at the official middle exchange rate at the end of the year	% in the total agricultural insurance premium
2006	5,186,544	40	8,659,809	50
2007	6,519,987	41	9,326,113	49
2008	5,770,217	32	12,025,654	45
2009	3,936,852	34	12,867,019	46
2010	2,684,216	26	12,100,461	48
2011	2,572,608	22	12,931,948	47
2012	3,855,114	28	11,926,648	47
2013	3,534,958	21	10,662,452	45
2014	3,643,727	22	8,226,749	41
2015	4,292,393	24	9,154,888	47
2016	6,534,648	30	9,054,767	49
2017	7,436,895	30	9,773,681	47
2018	9,117,430	32	12,937,517	43
Total	65,085,589	29	139,647,706	46

Source: [7-19], [31-43].

non-life insurance premiums during the analyzed period, in these two countries, is significantly larger. During the period 2006-2018, total non-life insurance premiums in Serbia were EUR 6,421 billion, and in Croatia EUR 11,198 billion. The average share of total agricultural insurance premiums in total non-life insurance premiums during the analyzed period was 3.45% in Serbia, and 2.69% in Croatia. Based on this data, it can be concluded that agricultural insurance is slightly more important in the non-life insurance market in Serbia than in Croatia. In addition, based on this data, it can be concluded that, in both countries, total agricultural insurance premiums have a small share in total non-life insurance premiums, which testifies to the underdevelopment of agricultural insurance.

Comparative overview of the number of paid claims for subsidies for agricultural insurance premiums and the amount of paid funds for these subsidies in Serbia and Croatia for the 2016-2018 period have been presented in Table 9.

Based on the presented data in Table 9, it can be concluded that the number of submitted claims had a growth trend in both countries during the analyzed period. However, bearing in mind that in 2018 there were 562,869 family agricultural farms in Serbia, while in Croatia this number was 162,248, we can conclude that in 2018 the right to subsidies for agricultural insurance premiums was realized in Serbia at only 3.99%, and in Croatia at 4.26%, of the total number of family agricultural farms. This data can be considered relevant for the percentage of insured family agricultural farms in both countries, which testifies to the underdevelopment of agricultural insurance despite significant subsidies for agricultural insurance premiums.

Conclusion

This paper presents research conducted for the purpose of assessing the level of agricultural insurance development

Table 8: Comparative overview of the share of total agricultural premiums in non-life insurance premiums in Serbia and Croatia, 2006-2018

Year	SERBIA			CROATIA		
	Total agricultural insurance premiums in euros according to the official middle exchange rate at the end of the year	Total non-life insurance premium in euros according to the official middle exchange rate at the end of the year	% of total agricultural insurance premiums in total non-life insurance premiums	Total agricultural insurance premiums in euros according to the official middle exchange rate at the end of the year	Total non-life insurance premium in euros according to the official middle exchange rate at the end of the year	% of total agricultural insurance premiums in total non-life insurance premiums
2006	12,929,468	433,963,127	2.98	17,352,293	818,928,205	2.12
2007	16,003,796	502,806,924	3.18	18,968,808	898,576,285	2.11
2008	18,244,207	517,371,091	3.53	26,518,669	974,865,194	2.72
2009	11,724,372	476,108,294	2.46	27,873,454	947,505,125	2.94
2010	10,209,207	447,099,742	2.28	25,101,240	919,119,972	2.73
2011	11,832,142	452,225,583	2.62	27,375,233	891,580,682	3.07
2012	13,759,967	436,238,565	3.15	25,348,599	871,673,569	2.91
2013	16,653,341	435,931,050	3.82	23,919,421	856,047,605	2.79
2014	16,903,668	441,473,888	3.83	19,990,417	773,163,926	2.59
2015	18,045,970	506,153,646	3.56	19,517,103	758,378,043	2.57
2016	21,494,635	534,616,088	4.02	18,651,227	766,490,641	2.43
2017	25,072,916	593,694,860	4.22	20,593,459	814,808,732	2.53
2018	28,524,374	644,036,276	4.43	29,780,083	907,013,141	3.28
Total	**221,398,063**	**6,421,719,134**	**3.45**	**300,990,006**	**11,198,151,120**	**2.69**

Source: [7-19], [31-43].

Table 9: Comparative overview of the number of paid claims for subsidies for agricultural insurance premiums and the amount of paid funds for these subsidies in Serbia and Croatia, 2016-2018

Year	SERBIA		CROATIA	
	Number of paid claims	Total disbursed funds in euros at the official middle exchange rate at the end of the year	Number of paid claims	Total disbursed funds in euros at the official middle exchange rate at the end of the year
2016	20,112	4,699,193	2,056	3,698,712
2017	22,171	5,092,730	2,956	5,704,074
2018	22,475	5,778,946	6,917	11,943,675

Source: [27], [28].

for family agricultural farms in Serbia and Croatia. To that end, a comparative analysis of the characteristics of agricultural insurance, and the level of its development for family agricultural farms, was conducted for these two countries, which were taken as comparative examples due to significant similarities important for the subject of research. According to the categorization of the Organization for Economic Cooperation and Development (OECD), the territories of both countries are dominated by rural areas which are, according to the structure of the agricultural entities, dominated by family agricultural farms, while agriculture has approximately the same share in gross domestic product (GDP) of both countries. The subject of research is not the state of the development of agricultural insurance in agricultural companies, i.e., legal entities, considering that these entities are, almost entirely, the beneficiaries of agricultural insurance in both countries, in accordance with the inherited tradition from the former common state.

Based on the conducted research, it can be concluded that both countries have approximately the same potentials of primary importance for the development of agricultural insurance in accordance with the defined goal of research: (a) family agricultural farms in the structure of agricultural holdings in Serbia make up 99.7%, and in Croatia 96.8%; (b) the share of agricultural surface used by family agricultural farms in the total area of utilized agricultural land is dominant in both countries, 76.1% in Croatia and 83.9% in Serbia; (c) the average size of family agricultural farms in Croatia is 5.3 ha, and in Serbia 5.18 ha, i.e., in both countries family agricultural farms have approximately the same economic strength from the aspect of the average size of agricultural holdings; (d) both countries have significant potential for the development of crop and livestock insurance; (e) in both countries, the structure of farmers is dominated by people over 65, as well as farmers with a secondary education, which is not favorable given that education is crucial for the development of agricultural insurance, and it is natural that younger people are more willing to learn in relation to older people.

Regarding insurance terms, from the aspect of the offer on the agricultural insurance market and subsidies for agricultural insurance premiums, it can be concluded that they are favorable in both analyzed countries. Considering that the paper observes the development of agricultural insurance as at 2018, it is necessary to say that during this period, agricultural insurance subsidies were higher for family agricultural farms in Croatia than in Serbia. Specifically, in Croatia they amounted to up to 70% of agricultural insurance premiums, and in Serbia up to 40%, with individual examples of, most often, an additional 10% of subsidies coming from the budgets of individual local governments.

The development of agricultural insurance in Serbia and Croatia was analyzed for the period from 2006 to 2018, on the basis of the number of agricultural insurance policies, the total amount of agricultural insurance premiums and its share in total non-life insurance premiums, as well as the number of family agricultural farms which had the right to subsidies for agricultural insurance premiums. Based on this research, it can be concluded that during the analyzed period: (a) the average share of the number of crop insurance policies in the total number of agricultural insurance policies was 84% in Serbia and 86% in Croatia; (b) the average share of the number of livestock insurance policies in the total number of agricultural insurance policies was 16% in Serbia and 14% in Croatia; (c) the total number of agricultural insurance policies in Serbia was 43,718 and in Croatia 41,112; (d) the average share of total crop insurance premiums in the total agricultural insurance premium in Serbia was 71% and in Croatia 54%; (e) the average share of total livestock insurance premiums in the total agricultural insurance premium was 29% in Serbia and 46% in Croatia; (f) the average share of total agricultural insurance premiums in total non-life insurance premiums in Serbia was 3.45% and in Croatia it was 2.69%; (g) in 2018, only 3.99% of the total number of family agricultural farms in Serbia were entitled to agricultural insurance premium subsidies, and in Croatia this was 4.26%. This last data can be considered relevant for the percentage of insured family agricultural farms in both countries, which testifies to the underdevelopment of agricultural insurance despite significant subsidies for agricultural insurance premiums. The underdevelopment of agricultural insurance in both countries is confirmed by the low average share of total agricultural insurance premiums in total non-life insurance premiums during the analyzed period.

Based on the conducted research, it can be concluded that in both Serbia and Croatia there are significant opportunities for the growth of the insurance industry in the market segment related to the insurance of family agricultural farms. Bearing in mind that supply is satisfactory, that solvency should not be viewed as a problem, as is often done, given there is significant subsidization of agricultural insurance premiums, it will be necessary, before all, to develop demand. To that end, it will be necessary to educate farmers about the importance and possibilities of insurance, which should be jointly organized by state institutions and insurers. It is also necessary to "restore" farmers' trust in the insurance system, which has been eroded due to incorrect damage assessments by some insurers.

The results of the conducted research indicate the importance of the policy of subsidy payments for agricultural insurance premiums on the growth of demand. Specifically, in Croatia, in 2018, the obligation of farmers to pay the entire premium before submitting the claim for the payment of the subsidy was abolished. Farmers were allowed to submit a claim for subsidies with the payment of only 30% of the agricultural insurance premium, with the Paying Agency for Agriculture, Fisheries and Rural Development paying the remaining amount of the premium directly to the insurers. We believe that this was the key to the growth of the total number of agricultural insurance policies, which increased in 2018 compared to the previous year by as much as 73%. This was not the case even when, with the entry of this country into the European Union, subsidies for agricultural insurance premiums were increased from 25% to 65%.

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