



# **SERBIAN ROAD TO THE EU: FINANCE, INSURANCE AND MONETARY POLICY**

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## **PREFACE**

It is undoubtable that Serbia, as one of the republics of the former Federative Republic of Yugoslavia, was very incorporated in terms of content in the developed markets of the Western Europe. The most developed countries of the Western Europe, primarily France and Germany, encouraged the creation of economic organizations such as the European Coal and Steel Community, the European Atomic Energy Community, the European Economic Community until the creation of the European Union. The European Union, as it was predicted by Robert Schuman in the declaration of the creation of the EU (known as the Schuman Declaration), developed gradually and during a long time period.

Regardless of the problems it has, the European Union is today the most powerful economic integration in the world.

Serbia's economic transition towards a more developed market economy and the full EU membership has been going on for almost 15 years. There have been and there will be numerous obstacles on that road and we need to overcome them and in that way gain full EU membership.

The transition of Serbian economy towards modern market economy is a complex economic process that has to cover all economic branches and all social occupations.

The Faculty of Business Economics and Entrepreneurship completely understood the need for Serbia's economic transition and the creation of a modern market economy that will be capable of dealing with the most developed market economies of the EU member states and other countries in the world and because of that, it pays special attention to the publishing activity and it is now prepared to publish a monography called *Serbian road to the EU: Finance, Insurance and Monetary Policy*.

The monography: *Serbian road to the EU: Finance, Insurance and Monetary Policy* deals with questions related to the economic transition of a part of the economic ambience in the aim of gaining full EU membership.

In the first part of the monography, we covered the issues related to the economic and financial aspects of the process of accessing and joining the EU. In this part, authors are showing and explaining the need for maintaining and encouraging the process of accessing and joining the EU and gaining full membership, by simultaneously pointing out to the obstacles that are occurring in that process and the consequences of overcoming or not overcoming those obstacles. The authors are emphasizing that Serbian economy will benefit from the process of accessing and joining the EU regardless of whether the process will result in gaining the membership or not.

The second part deals with the issue of insurance which is a very significant economic activity for the process of accessing and joining the EU, and which results in the reduction of the total risk of the social system transition. In this part of the monography the authors are pointing out to different types of insurances and

they are explaining in a very simple and understandable way the role and significance of insurance from the macroeconomic aspect, but also from the consumers' point of view.

The third part covers the topics from the field of banking and financial markets. If we know that money is the bloodstream of every economy, then these topics shouldn't be overlooked when considering the transition of Serbian economy towards the full EU membership. The authors of these topics are pointing out to the role and significance of Serbia's participation in the international financial markets, as well as to the specificity of certain pieces of information that are necessary for the functioning of the international financial markets and financial markets in general.

The monography: *Serbian road to the EU: Finance, Insurance and Monetary Policy* represents a very useful reading for all those who are involved in the economic politics and for all those who are involved in the transition of the Serbian economy towards a developed market economy, and it can also be very useful additional literature for students at faculties and colleges of economics.

October 2016.

*Full Professor Milan Beslac, PhD*

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***I PART***  
***THE PATH TO THE EUROPEAN UNION***





## **SPECIFICS OF OBSTACLES OF SERBIA ON ITS PATH TOWARDS EU**

*Milan Beslac*<sup>1</sup>

*Jovica Beslac*<sup>2</sup>

### **ABSTRAKT**

*There is no doubt that the EU is currently the largest and economically most powerful regional economic integration. From this point of view, path and joining Serbia to the EU should not be a dilemma. It is always good to be with the best. But the process of Serbia's accession to full membership in the EU, political and economic elite in Serbia represents it as a path without alternative. But there is no doubt that Serbia, on the path to EU, expects many obstacles related to its internal political order (Status of the Autonomous Province of Kosovo and Metohija), the relationship between neighbors and their demands towards Serbia during the accession process (which is best seen when opening chapter 23 and 24) as well as various barrier is to arise because of the relations between the EU member states (as is evident from the attitude towards Russia and attitudes towards migrant crisis) as well as the inevitable transformation of the EU itself in the future. Therefore, there is a reasonable question, whether the Serbia's path and joining to full membership in the EU really has no alternative and whether benefits which will be achieved by joining the EU are the same as victims that will have to be submitted for full membership in the EU. The primary goal of this paper is to show that Serbia's path towards full membership has both economic and political justification, but that that path should be built so that in case of insurmountable obstacles path has an alternative.*

**Key words:** Accession, EU, Serbia, The obstacles, The transformation of the EU

**JEL Classification:** F36,F53

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## ***INTRODUCTION***

This work is the result of thinking of the author on Serbia's path towards EU membership, the obstacles that await in this way, the advantages and disadvantages of membership, as well as alternatives in case of impossibility of overcoming all obstacles that the EU set Serbia on a long road to full membership. The work represents original thinking of the author particularly in so far as it relates to the inability to overcome the obstacles and possible alternatives, and since on this subject there are no valid scientific and professional papers by Serbian author, considering the position of the government, or the last few governments, much of the opposition parties, almost all NGOs that Serbia's path to EU has no alternative.

There is no doubt that the EU's most powerful regional economic integration. This regional economic integration formally consists of 28 countries (the United Kingdom in June 2016 in a referendum decided to withdraw from the EU, but the process of withdrawal has not yet begun) who joined the founders in the past 50 years. Although the criteria are defined for joining or obtaining full membership in the EU, today's experience has shown that each country did not have the same path. Let us remember that the United Kingdom, twice at a press conference by French President Charles de Gaulle, was informed that it cannot become a full member of the EC because it allegedly failed to meet the defined criteria, but did not specify what criteria. We now know that these were not economic criteria but that the reasons for the lack of acceptance of the requires of the UK for full membership in the EU from the sixties, were political in nature.

Croatia is the last country to become a full member of the EU, and we all know it has not met the basic criteria on human rights when it comes to the return of persecuted Serbs, on the protection and restitution of their property, the protection of their cultural heritage and the like.

Serbia for almost 15 years trying to become a full member of the EU. After the enthronement of Serbian prime minister in 2000. Zoran Djindjic has spoken that Serbian goal is Europe and he sees country in 2004 as an official candidate for EU, in 2010 to be an equal member of the EU. As a man held 50 years in order to come up for air, and Serbia will not stop anything along the way to oxygen, and it is Europe.

In 2016, Serbia is an official candidate for EU membership and first chapters are opened (of a total of 35), and "negotiations" have begun on accession to full membership.

The author of this study finds that 35 chapters which are, "opening" and "after negotiation" closing, does not represent the reality of any negotiations but setting tasks, by the EU, and setting the conditions of the EU and analysis, and making conclusions and consensus of all member States, whether these requirements are met and to what extent, in the opinion of the member countries. What is important to know is that "the opening "or, closing" of individual chapters have to be approved by all member states of the EU, then 28 of them or 27 of them when Great Britain formally withdraw from the EU.

In the period of 2000-2016 (in 2016th were opened the first chapter) on Serbia's path towards the EU, there were many obstacles that Serbia has had to overcome that concerned above all relations between Serbia and its Autonomous Province of Kosovo and Metohija, which unilaterally declared its independence, and which is recognized by 23 countries and the EU. This fact alone for euro sceptics and those who oppose Serbia's membership in the EU is enough to make a conclusion that the EU has neither good intentions nor Serbia are considered equal with other countries-candidates for EU membership or those who have recently joined the EU.

It is a known fact that the EU that we know today evolved gradually step by step, just as is provided by Robert Schuman in his declaration.

An excerpt from the Schuman Declaration: "...Europe will not be made all at once, or according to a single plan. It will be built through concrete achievements which first create a de facto solidarity... The pooling of coal and steel production should immediately provide for the setting up of common foundations for economic development as a first step in the federation of Europe, and will change the destinies of those regions which have long been devoted to the manufacture of munitions of war, of which they have been the most constant victimsh ([https://europa.eu/european-union/about-eu/symbols/europe-day/schuman-declaration\\_en](https://europa.eu/european-union/about-eu/symbols/europe-day/schuman-declaration_en)).

During the development of European integration, and when felt the need to expand with the new members of the EU in Copenhagen in 1993 are defined the so-called Copenhagen criteria (Djukanovic, Gajic, 2010, p. 49-51) to be met by countries that have the intention and desire to become members of the EU. These criteria include political, economic and legal area.

Criteria that is tied to political area is defined so that the country must have stable institutions which ensure democratic process (Miljus, 2015, p. 126-132) in decision making, rule of law and respect for the rights and protection of minorities.

When analyzing this area in Serbia neither one well-meaning analyst can detect any deficiencies in this area: Firstly, by all criteria, the state of Serbia is a democratic country whose power is divided into legislative, executive and judicial, which are ranges of modern democracy. Country Serbia conducts the selection process in a democratic and transparent manner on the content of which EU observers, an observer of the OECD and Russia and other countries do not have any objection. Country Serbia enact laws in the National Assembly and the executive branch does not implement its rule through decrees, regulations and instructions but on the basis of law, which is a measure of the value of the EU.

As for the rule of law it is no greater or less than some EU members such as for example, Croatia, Romania, Bulgaria and so on. As far as the protection of minority rights there can be found absolutely no objection. Specifically, minorities and minority groups in Serbia have the same rights, and often more rights than the majority Serbian people. Minority rights in Serbia in many areas are higher than in many EU countries. So, if we consider this criterion it was Serbia has met and from that point can immediately become a full member of the EU.

The second criteria that is related to the economic area requires that there is a functioning market economy (Miljus, 2015, p. 126-132) which is able to cope with competitive pressure and market forces within the Union.

Regarding this area, without specific analysis, it is clear that Serbia does not fully meet this criterion. But, before making a final conclusion it should be noted that Yugoslavia, in which included Serbia, was a socialist country that is of all socialist countries was mostly incorporated into the market economy of Western Europe. Although in Yugoslavia existed not property or public property, even though the economy is based on the principle of self-management, it took place on market principles and carried out is extremely high exchange with the world. At the same time, starting from the beginning of the nineties the Act governs the possibility of the formation of private companies.

However, at the end of the nineties there was a break-up or secession of certain republics, members of the Yugoslavia (Slovenia, Croatia, Bosnia and Herzegovina) that caused a four-year civil war. Today in 2016 it is clearly known that this secession and civil war was initiated, supported and in good part driven by the most developed countries of Western Europe and the United States. This war is not waged on the territory of Serbia, nor with the participation of its military, but Serbia was blamed for it and suffer the most comprehensive economic and other sanctions that have ever applied to any country in the world.

After the end of the civil war that was waged on the territory of Bosnia and Herzegovina and the Croatia, again with the support, economic and military assistance from the major countries of Western Europe and the United States began a rebellion of Albanians in the autonomous province of Kosovo and Metohija, which culminated in the NATO aggression against Serbia when 19 countries continuously 78 days with daily bursts of about 300 aircraft on height over 8000 meters (these heights were safe for NATO planes, because they knew that Serbia does not have a weapon that they could jeopardize the aircrafts), bombed Serbia destroying the entire economic potential (major factories, bridges, infrastructure facilities, government buildings, etc.). The recovery of this aggression is still going on and question is if Serbia would ever get to full recovery given that the bombs contained depleted uranium, that are used cluster bombs and the like.

Today the most powerful countries that participated in the bombing of Serbia, as well as members of NATO, recognized that it was illegal bombing (without UN Security Council approval) and that started on the basis of forged and false data verifiers of the EU.

If only these facts have in mind then it is a moral obligation under international law to compensate the damage caused to Serbia by international forces and thus help Serbia build a market economy that is able to cope with the economies of the EU.

Thus, the undisputed fact is that Serbia today has no competitive market economy in line with the Copenhagen criteria, which can measure up to the market economies of the most developed EU countries. But this situation is objectively conditioned by operations of these same most developed countries of Western

Europe illegally and unfairly and therefore there is their legal and moral obligation to support and encourage economic Serbia to be equally involved in the selective market of the EU, but not only through the approval of loans but gifts, donations and compensation for the damage caused.

The third criteria that relates to the field of law implies the ability to assume the obligations of membership including adherence to the aims of political, economic and monetary union (Miljus, 2015, p. 126-132).

That the EU and US, which are undoubtedly contributed to Serbia today there is not enough built a competitive economy that can successfully deal with other countries on the demanding EU market and other markets in the world, helped Serbia with non-refundable funds and new technologies, which is their moral and legal obligation, then the growth in Serbia would be able to cope with the economies of most developed countries in the EU and could participate equally in the European and world markets with other countries. At the same time Serbia would have the ability to assume all obligations arising from its membership in the EU.

Thus, the above criteria are criteria that the EU itself has prescribed that must meet the countries that intend to join the EU. But for Serbia, these criteria are not valid and do not apply only these criteria. It can be concluded that the EU sees Serbia as „sovereign "entity, such as itself and for Serbia are valid laid Copenhagen criteria, but also the criteria that establish just for it. Because how else to explain that Serbia's path towards the EU for years “strained” cooperation with the ICTY, and this cooperation, as it turned out really is implied extradition of Radovan Karadzic and Ratko Mladic, who are citizens of other countries (Đukanović, Gajić, 2010, str 59-60). Even if, in the broadest sense there was an obligation to extradite persons accused of war crimes, how this obligation can be an integral part of pre-defined Copenhagen criteria. Of course, that that obligation is not, nor can it be part of the Copenhagen criteria, but it is defined and required only from Serbia. Thus, Serbia is not in the same position as they were the other countries which have become full members of the EU. In addition to Serbia's path towards the EU there is other, according to the author of this work, an insurmountable obstacle, and that is the establishment of full relations with the self-proclaimed state of Kosovo to full recognition, exchange of ambassadors and providing self-proclaimed state of Kosovo „ chair" in the UN. This requirement neither one country in modern history in can accept. Will there be someone in Serbia who can recognize the secession of its own territory and provide a full membership in the United Nations remains to be seen. The current ruling elite stresses that it will never do it, but without it, according to the author of this work, certainly there will be no membership in the EU. In support of this view is the fact that the opening of the first chapter carried out only after the signing of the so-called. Brussels Agreement.

The current ruling political elite and its foreign economic policy is defined as the path to the EU without alternatives. It is quite a reasonable question why the path to the EU has alternatives. Is it possible in any human activities have only one way, or single solution. The current theory and practice in every area clearly showed that any goal can be achieved with more solutions, more paths, of course,

not always with the same speed, the same costs and the same effects, but it is always necessary to have a second or third alternative, if there lack of realization of the first or second determinations.

### ***JUSTIFICATION FOR THE COMMITMENT TO FULL MEMBERSHIP IN EU***

When the euro fanatics, and the ruling political elite, reflected in the Serbian Progressive Party and the Socialist Party of Serbia, explains why they chose the path towards full membership in the EU as a path without alternative usually say - this is our biggest economic partner, cannot be different because we border with EU countries (Croatia, Hungary, Bulgaria, Romania), without the EU nothing can save us etc.

There is no doubt that it is important, it is important both economically and politically justified to be a member of any powerful organizations including the EU. Being a member of the powerful organization carries with it a number of positive elements. The powerful organization enables the economic problems that occur can be overcome in an easier and faster way with lower costs and more efficiently. For example, Greece, as an EU member, in the last few years have been hit with very great difficulties, but it is with the help of the EU (and with its conditions) has a chance to overcome them. Powerful organization still has a very large and important resources (market, human resources, technology, standards, finance, etc.) that are available and which are easier to use when one country is a member of this organization than when outside.

Table 1: Basic indicators of the European Union and Serbia

| Ordinal number | Indicator                           | Unit            | EU          | Serbia    |
|----------------|-------------------------------------|-----------------|-------------|-----------|
| 1.             | Surface                             | km <sup>2</sup> | 4.324.782   | 77.474    |
| 2.             | Population                          | Population      | 515.949.445 | 7.209.764 |
| 3.             | Domestic gross production GDP (PPP) | billion \$      | 19.018.000  | 43,68     |
| 4.             | GDP (PPP) per capita                | \$              | 37.800      | 11.100    |
| 5.             | Number of member states             |                 | 28          |           |

Source: [www.world.cia](http://www.world.cia) (2016)

From the above table clearly emerges that each member of the EU only within the EU has at its disposal the market 515 million inhabitants, it has at its disposal the consumer whose GDP per capita \$ 37,800 and so on. These resources are very important for countries with a small population and whose GDP per capita is lower or significantly lower than the GDP per capita than the average in the EU, because they have at their disposal a huge number of consumers who have high purchasing power.

Parallel Resources Serbia and the EU indicate that they are immeasurably lower than the resources of the EU and that this is one of the important reasons why it is good to be a member of the EU. Thus, the Serbian market than 77,000 consumers in the event of a full-fledged membership in the EU will be available to 515 million consumers and 37,000 \$ GDP per capita. But one should always bear in mind the fact that the potential benefit EU level of economic development of Serbia should be the approximate economic level as the EU because it will otherwise happen that only the EU will expand its market and there will not be an equal interaction between these two markets.

The European Union is designed so that one of its essential features in the free movement of capital, labor, technology, population, and the like. This freedom applies only to EU member states, but not for the country and residents outside the EU. So, being a member of the EU, from that point also brings considerable advantages in relation to countries that are not.

Also, one of the main reasons for the emergence and establishment of the EU is to preserve lasting peace. If we know that Serbia in the nineteenth and twentieth centuries was more years at war than it is to live in peace, then membership in the EU undoubtedly has a great importance from the point of enabling and achieving lasting peace.

The preservation of peace is realized through a common policy or cooperation in the field of security and foreign policy, on the one hand brings advantages because in these two areas-EU rely on the so-called. collective security and foreign policy of the whole EU, but also has a negative impact on the sovereignty of each country separately, because consequently leads to its reduction. Also, cooperation in the field of justice and home affairs as well as cooperation in the field of security and foreign policy, has clear advantage and disadvantages. The advantages are the fact that it is easier fight against deviant phenomena such as drug trafficking, trafficking, and other criminal activities, but it also comes free flow of people and the absence of controls at internal borders of the Union, which contributes to the increase of deviant phenomena.

Therefore, during the candidacy for membership in the EU, each country has to measure whether the benefits that membership brings are more significant and whether they are justified in relation to, first of all the reduction of sovereignty, as well as other negative consequences that can in the shortest terms defined as a form of modern colonialism which will be discussed later.

When it comes to Serbia and its unconditional commitment of the membership in the EU, as one of the arguments that always stands out, is that the EU's most important economic partner of Serbia. There is no doubt that the statistics corroborate this fact. But when considering the economic relationship with the EU Serbia should keep in mind that this is the economically bilateral relations between Serbia and individual EU member states, not the EU as a whole. The data on economic exchange with the EU represent data on economic exchange with each country individually and then added together and thus obtain data on the economic trade with the EU. In this way, it is only possible to establish economic relations

with the EU because the EU as a whole does not perform any economic relations with any country of the world.

*Table 2: Overview of the import and export of Serbia to the EU countries in million \$*

| Year | Export | Import | Deficit |
|------|--------|--------|---------|
| 2012 | 5.307  | 9.687  | 4.380   |
| 2013 | 7.629  | 11.236 | 3.607   |
| 2014 | 7.921  | 11.445 | 3.524   |

Source: Republic Statistical Office of Serbia - Statistical Yearbook of the Republic of Serbia, 2015.

These data clearly show that Serbia with EU countries achieved a cumulative deficit in the trade exchange. This situation is not, nor can it be a surprise to anyone if you have the level of development of Serbian economy and the economies of the EU. The trade deficit is due to the lack of competitiveness of the Serbian economy in relation to the EU countries.

So, in addition to the indisputable fact that the EU Serbia has more than 50% of trade should be taken into mind that the results of this exchange deficit from years back.

If the Republic of Serbia at this time and at this stage of economic development became a member of EU, the authors of this study believe that this deficit was even higher. The complete freedom of movement of capital, goods, labor, technology and the like would not contribute to the development of competitiveness in Serbia, but quite the contrary, contributed to the spread of the EU market in the territory of Serbia on the one hand, and the export from Serbia would be reduced on the export of raw materials and product lowest level of processing.

If we analyze the data in the above table clearly leads to the conclusion that Serbia has a trade deficit with the EU countries except Italy and Romania. This fact leads to the conclusion that Serbia is not ready for choosy EU market. But it also presents data showing that Serbia with CEFTA countries has surplus which means that its economy is at the moment compatible with the economies of the CEFTA agreement.

Table 3: Export and import of Serbia from selected countries in 2012, 2013 and 2014

| Ordinal number | Country         | Export in bill. USD |       |       | Import in bill. USD |       |       | Deficit/Surplus |        |       |
|----------------|-----------------|---------------------|-------|-------|---------------------|-------|-------|-----------------|--------|-------|
|                |                 | 2012                | 2013  | 2014  | 2012                | 2013  | 2014  | 2012            | 2013   | 2014  |
| 1.             | Italy           | 1.198               | 2.379 | 2.577 | 1.828               | 2.359 | 2.309 | -630            | +20    | +268  |
| 2.             | Germany         | 1.310               | 1.375 | 1.773 | 2.060               | 2.256 | 2.427 | -750            | -881   | -654  |
| 3.             | Croatia         | 386                 | 416   | 459   | 532                 | 471   | 546   | -146            | -55    | -87   |
| 4.             | Slovenia        | 422                 | 479   | 471   | 581                 | 571   | 561   | -149            | -92    | -90   |
| 5.             | Romania         | 904                 | 786   | 830   | 818                 | 582   | 587   | +86             | +204   | +243  |
| 6.             | Bulgaria        | 287                 | 336   | 384   | 501                 | 439   | 411   | -214            | -103   | -27   |
| 7.             | Bosnia and Her. | 1.095               | 1.201 | 1.319 | 462                 | 484   | 535   | +633            | +717   | +784  |
| 8.             | Macedonia FYR   | 485                 | 576   | 604   | 297                 | 265   | 252   | +188            | +311   | +362  |
| 9.             | Russian Fed.    | 867                 | 1.063 | 1.029 | 2.078               | 1.904 | 2.340 | -1.211          | -841   | -1311 |
| 10.            | China           | 6                   | 9     | 14    | 1.385               | 1.509 | 1.561 | -1.379          | -1.500 | -1547 |
| 11.            | United States   | 97                  | 490   | 313   | 316                 | 306   | 279   | -219            | +184   | +34   |

Source: Republic Statistical Office of Serbia - Statistical Yearbook of the Republic of Serbia 2015

Particularly interesting is the trade with China because this country achieved a huge deficit. Superficial reason for the very low level of exports to China is geographical distance. But if we take into account imports from China, then that argument cannot be acceptable. Since China is a huge market, which varies according to the degree of development in certain regions, it can be concluded that the current level of economic development of Serbia has the conditions for export to the Chinese market, and to those parts of the market that are less economically developed. At the same time, plans to rejuvenate the Chinese, silk road "through Serbia to Western Europe is to objectively significant potential for cooperation and export to the Chinese market.

Data on trade with the Russian Federation show a high deficit. Deficit in trade with Russia is on one hand understandable and justified if one takes into account that the Russian Federation is predominantly supplying Serbia with energy sources, but on the other hand, if one takes into account a preferential trade agreement, then he is an unjustified measure. Preferential Trade Agreement with the Russian Federation, which has been in force for more than a decade allows Serbia that its trendsetting products (95% of the products) exported to the Russian Federation without paying customs duties. Nevertheless, Serbian export to the Russian Federation can be said to be very modest. The reason for this is that the Russian market has become very demanding. Specifically, it requires the

fulfillment of the so-called three-K - quantity, quality, continuity. So, it is a single market of 150 million inhabitants (a third of the EU population) by simultaneous demands quality products at the highest standards, large quantity and continuity of supply. These requirements Serbia in organizational terms and with their current market potential cannot be fulfilled. This is why the EU market, which make individual Member States, at this time acceptable for the Serbian economy, because the requirements of individual EU member states are easier to fill in quantitative terms than the market demands of the Russian Federation. And this is one of the important reasons why it is good to be a member of the EU.

## ***ADVANTAGES AND DISADVANTAGES OF SERBIA'S ACCESSION TO EU***

### ***THE BASIC CHARACTERISTICS OF TODAY'S EU***

The European Union is in fact primarily a political project at the end of the process should lead to a common state or as a federation or a confederation of states. The best evidence for this claim is the attempt of adopting the Constitution of Europe and subsequently concluded Luxembourg agreement that is in fact a slightly modified variant previous constitutions of Europe.

The global economic crisis has seriously affected the economies of the EU, but not equally to all member states. This crisis, which appeared as a crisis in the financial sector, overflow and continues to overflow into the real (Radovanovic, 2015, p.17-25), but also the social sector. The consequences of the economic crisis are in high public debt (which is significantly higher than the level of public debt, which is defined by the Maastricht Treaty), but also the growth and expansion of public expenditure and the budget deficit and increase in unemployment rate.

Maastricht Treaty stipulates that the Eurozone's public debt may not exceed 60% of GDP, the budget deficit may not exceed 3% of GDP, the inflation rate cannot exceed 1.5% of the three countries with the lowest inflation rates, that the interest rate cannot be higher than 2% of the three countries with the lowest long-term interest rates and so on. However, this policy is not complied by any the member countries because they all have a public debt that is more than 60% of GDP, which is in the most extreme cases, moving up to 147%. It is significant to note that there is no tendency to decrease public debt to GDP ratio, but on the contrary there is a tendency to increase it, as a result of anti-crisis measures implemented by financing banks and insurance companies from the budget, and the like. The fall in interest rates is also important to negative levels, a rise in unemployment is visible because the EU average unemployment rate above 10%, and in some countries such as Greece and the unemployment rate is 27%.

*Table 4: Review of the level of public debt and budget deficits of selected EU countries in terms of GDP*

| Country  | The debt /<br>budget deficit | Year  |        |        |        |
|----------|------------------------------|-------|--------|--------|--------|
|          |                              | 2003  | 2010   | 2011   | 2013   |
| Greece   | The debt                     | 105,6 | 130,0  | 147,0  | 165,3  |
|          | budget deficit               | -10,1 | - 24,0 | - 22,1 | - 24,8 |
| Spain    | The debt                     | 72,0  | 78,0   | 80,0   | 80,9   |
|          | budget deficit               | - 4,4 | - 9,0  | - 9,9  | - 10,4 |
| Italy    | The debt                     | 118,5 | 124,2  | 123,5  | 127,3  |
|          | budget deficit               | - 7,0 | - 12,8 | - 12,8 | - 13,6 |
| Belgium  | The debt                     | 113,2 | 126,0  | 98,0   | 122,6  |
|          | budget deficit               | -3,5  | - 9,9  | - 9,0  | - 10,2 |
| Portugal | The debt                     | 83,0  | 87,0   | 107,8  | 120,3  |
|          | budget deficit               | - 5,5 | - 10,6 | - 10,8 | - 10,0 |
| Ireland  | The debt                     | 66,0  | 94,0   | 108,2  | 157,0  |
|          | budget deficit               | - 1,0 | - 8,0  | - 8,1  | - 8,3  |
| E U      | The debt                     | 70,0  | 80,0   | 82,5   | 86,2   |
|          | budget deficit               | - 2,2 | - 4,4  | - 6,5  | - 7,2  |
| Eurozone | The debt                     | 71,1  | 85,4   | 88,1   | 90,9   |
|          | budget deficit               | - 3,0 | - 4,1  | - 6,2  | - 6,8  |

*Source: Eurostat, 2010,2013.*

These data clearly show that there are differences in the EU countries, their debt and budget deficit is growing, and there is no tendency to decrease.

From these figures it is visible all the diversity of EU countries that, despite harmonization of a large number of documents, laws and regulations did not have resulted in a harmonious employment.

The global economic crisis has revealed and completely laid bare known fact that the EU consists of countries that are different in the level of development and by different policies particularly in the field of the fiscal system. EU has member countries that use the single currency (the euro) and the member countries with their own currency so that it is not possible to create a single monetary policy. As the EU member states allowed to maintain their fiscal policy problem of diversity is increasing because there are differences in the level of fiscal burden, the amount of public debt, the number and type of tax forms and tax rate, the amount of budget deficit to GDP ratio, etc. ( Komazec, 2014, p.81-87).

Table 5: Overview of the unemployment rate in EU

| Country   | %<br>Unemployment | Country        | %<br>Unemployment |
|-----------|-------------------|----------------|-------------------|
| Greece    | 27,0              | Estonia        | 9,9               |
| Spain     | 27,0              | Slovenia       | 9,7               |
| Portugal  | 18,0              | Sweden         | 8,2               |
| Slovakia  | 14,6              | Belgium        | 8,1               |
| Estonia   | 14,3              | Finland        | 8,1               |
| Ireland   | 14,2              | United Kingdom | 7,7               |
| Cyprus    | 14,0              | Denmark        | 7,4               |
| Lithuania | 13,1              | Czech Republic | 7,2               |
| Bulgaria  | 12,5              | Romania        | 6,7               |
| Italy     | 11,6              | Malta          | 6,6               |
| Hungary   | 11,2              | Netherlands    | 6,2               |
| France    | 10,8              | Luxembourg     | 5,5               |
| Poland    | 10,6              | Germany        | 5,4               |
|           |                   | Austria        | 4,8               |
| <b>EU</b> |                   |                | <b>10,0</b>       |

Source: Eurostat January 2012

The economic crisis has contributed to that is completely obvious that the EU consists of several groups of countries with different economic performance, and that if they are viewed through the GDP per capita, and if viewed from the aspect of the single currency (17 EU member countries use a single currency, a 11 member countries of EU uses its own currency). Thus, the value of GDP per capita is in the range of approximately 10,000 euros (Bulgaria) to about 46,000 (Luxembourg).

Two-speed Europe or a Europe more speed: the popular term for a method of differentiated integration within which to one or more groups of EU member countries could decide to go faster and further in the integration of the other. Similar is the meaning of the term Europe of concentric circles, in connection with them are referred to different ( „ circles "of countries, varying in the degree of EU integration that have reached the “circle of common law” , “ Circle neighborhood "- countries outside the EU who want to join), or by the authorities (the currency circle,, ",, defensive circle" ...) "- according to the glossary of the EU and European integration, the European forum, No. 4. Belgrade, in April 2004.

In view of these aspects of EU observation actually made up of several groups of countries.

The first group (the first circle or the state of the first speed) countries may include the following countries: Germany, France, United Kingdom (before leaving), Italy, Austria, Finland, Norway, Denmark, Sweden, Luxembourg and the Netherlands (Komazec, 2014,p.82). It is noted that in this group, in this circle of countries are founders - Germany, France, Italy, Luxembourg and the Netherlands, and countries that have first joined of the EU - Finland, Norway, Denmark, Sweden and Austria. In another group or second group of countries may include

countries such as Belgium, Portugal, Spain, Ireland, Cyprus, Slovenia, Malta and Greece (Komazec, 2014, p.82). The third group of countries or third circle include countries that were later joined, and that were former socialist countries - Poland, Slovakia, Czech Republic, Lithuania, Latvia, Estonia, Bulgaria, Romania, Croatia (Komazec, 2014, p.83).

The candidate countries for EU membership - Serbia, Bosnia and Herzegovina, Montenegro, Albania, Macedonia when and if they enter the EU membership can only be the fourth group of countries or member of the fourth circle.

Authors opinion is that the diversity of current performance and the formation of those groups (circles) EU Member States and their mutual, increasing stratification, the candidate brings to the opportunity / trouble adapting to their performance and economic integration which is at the end of the road does not know how it will look nor whether exist in (in the moment of writing this paper Great Britain has already decided in a referendum on leaving the EU, which will have strong consequences on both the economic relations in the future between the EU and the UK as well as in terms of groups and organizations in other EU member states which advocate or leaving the EU or for a thorough reconstruction of relations in the EU).

### ***POSITIVE AND NEGATIVE CONSEQUENCES OF EU MEMBERSHIP***

Serbia has as its official state policy set so that membership in the EU is a path with no alternative, path that will lead to a high standard, full employment and prosperity.

The current situation in some EU countries, which are its members more than 50 years (if one takes into account the membership in the European Communities prior to the formal creation of the EU), disputes euro fanatics argument that only membership in the EU contributes to a better life for the population, and it is unquestionably a fundamental and general objective and the task of each country. Regardless of the current economic situation in some EU countries there are numerous positive reasons for membership in this and such an organization.

The basic positive elements of Serbia's membership in the EU can be stated as follows:

1. Serbia as an EU member has the ability to perform at a broad developed market without customs barriers with over 500 million consumers.
2. The membership of the EU implies acceptance of quality standards and quality control through the organs of the EU. Enhancing the competition and the quality of their products and, above all, health safety is brought to a high level.
3. The development of the EU market encourages specialization, competition and quality of every form of economic activity.

4. Products with the developed EU markets more easily available to consumers in Serbia. So, the choice is intensifying, consumer tastes determine the supply and demand, while the market present products from the standpoint of quality according to the economic strength of the consumer.
5. Accepting the different procedures and controls by the authorities of EU encouraged a more stable business conditions and risk reduction.
6. Stable business state that allows economic growth and development can be achieved by harmonization of macroeconomic policies of Serbia with the macroeconomic policy of the EU and its most important members. In fact, at this moment, Serbia is not able to independently without external influence adjust its economy to selective world market.
7. Serbia as an EU member has the option (if it is organized to exploit it, and if the train in the implementation of certain procedures) to use some funds from EU funds.
8. Serbia is a technologically underdeveloped country, and one of the reasons of such situation are the sanctions enforced by the international community against the Federal Republic of Yugoslavia in the 90s as well as the bombing of NATO forces in 1999. As a member of the EU, Serbia would have the possibility of rapid technological progress and development.

What is important to bear in mind is the fact that the benefits that Serbia could achieve as a member of the EU in the fourth group of countries or a fourth circle of EU member countries, if its interests coincided with those of other EU member states. The main negative elements or negative consequences of membership can be counted among the following:

1. The membership of Serbia in the EU in the fourth group of countries or in the fourth circle with a less developed economy in relation to other EU member countries would bring with it dependent relationship to contemporary neo-colonialism.
2. a less developed economy in the same market with the most developed countries of Western Europe Serbian membership in the EU would result in unequal exchange relationship... (Komazec, 2014, p.112-113) and contemporary exploitation.
3. Other members of the EU on the free market of Serbia, as technologically developed countries, would enable the rapid exploitation of Serbian resources.
4. The EU market is regulated by the production quotas of certain products which would be devastating for the Serbian economy, especially in agriculture.
5. Serbia's membership in the EU would result in the partially loss of economic sovereignty so that a variety of protectionist measures are disabled and also measures of state intervention in order to protect the domestic economy, and where the measures are allowed Serbia would not be able to adequately respond as developed countries of the EU.

6. Certain industries, due to the state in which they are now, but which cannot reach the level of development of developed countries until the moment of full EU membership, can be either be completely destroyed or reduced to measure dirty industry.
7. In the case of Serbia's membership in the EU it becomes only expanded the market of developed countries in the EU which would have a decisive role companies from these countries.
8. The national economic policy should be aligned with national policies of most developed countries of the EU which would result in all the advantages of harmonized national policies used by most developed countries of the EU, and all the harmful consequences of harmonized national policy would fall on Serbia from those countries.
9. The full liberalization of the market including the sale of national resources such as agricultural land is collapsing economic system of Serbia as a whole.
10. Preparation costs of the economy occur immediately which results in an increase in public debt, and possible benefits occurring in the future and very gradual.
11. Membership in the EU certainly implies termination of the contract with Russia about preferential status of Serbian trendsetting products with negative consequences for the exchange of goods, and can simultaneously have negative consequences on the dynamics and energy prices that have no sources other than Russia.
12. Contributions, or membership fee, which is paid for membership of the EU, must be paid immediately but benefits from EU funds and if those are available are in the future. Namely, since the funds of the EU are limited resources it is not possible for all countries „to use" more resources than they pay into the funds.

Above are listed only the main positive and negative elements of membership in the EU. Therefore, the EU project should be approached very rational measuring several times the positive and negative aspects. If we bear in mind that the United Kingdom had made a decision about leaving, that in many countries, EU members, is growing skepticism that certain countries, such as Hungary does not support all decisions taken at the EU level (eg decisions regarding quota of migrants), that some states do not accept a unified foreign policy in all cases (5 EU member states have not recognized the self-proclaimed republic, Kosovo "as an independent state) if you do not know how it will look in the end EU accession process and accession to full membership, it is quite a rational conclusion that full membership should not be rushed. This conclusion does not exclude the need to take measures and changes in the economic system of Serbia, which is compatible with the economies EU member countries, but also with other developed economies such as the US, China, Brazil and so on.

## ***RELATIONS BETWEEN UNDERDEVELOPED AND DEVELOPED***

Bearing in mind all of the above Completely free international market, although in theory there is, to this day nowhere is applied, and it seems to never be because of the simple reason that it is not in the interests of developed countries.

Most developed countries, either individually or through international institutions, particularly through the WTO advocates the abolition of all customs barriers, quota, etc. in order of "promoting" international exchange. However, these same countries with non-tariff barriers are in fact preventing the free flow of production factors, above all from the less developed and developing countries to developed countries. Therefore, the gathering of developed countries in an economic (political) organization and their "desire" to join the less developed and developing countries for their prosperity is not honest nor economically justified. The market economy essentially implies competition of quality, quantity, continuity, new technologies, maximization of profits which actually means that in the meeting of developed economies with underdeveloped the score is known, which is always in favor of developed countries.

Therefore, countries of developed market economy cannot aim at the development of less developed or underdeveloped countries because it is contrary to any economic logic (Beslač et al., 2013, p.3-7). The aim of the developed countries of market economy can only be bringing the economies of underdeveloped or less developed countries in such a level of economic development that will allow them unhindered exploitation of their resources. This is a fundamental economic reason why developing and underdeveloped countries may not suit a completely free market (Beslač et al., 2013, p.3-7). Although it is known that in certain cases "David" can defeat "Goliath", but in the economy it is very difficult to achieve. In this light should be seen the way of Serbia in the EU. Serbia in the EU will always be a "David", and the most developed EU countries "Goliath".

However, despite the fact that in the fight, "David" and "Goliath" in the economy score is always or almost always known just participation in this fight, "David" gets certain benefits and privileges. In fact, without the participation in international trade underdeveloped countries will never reach developed because their participation in international trade enables the acquisition of new technologies, know-hows, provides access to capital markets and other financial markets, etc.

Multinational companies in the era of information technology and high technologies perform on the world market, pulling down all the barriers and any local market becomes part of the world market. They bring to local markets new types and qualities of goods and services, new technologies, new methods and philosophy of behavior, a new, as general culture, and culture in the economy and new socio-economic relations.

In this way, these foreign companies influence and motivate local companies to improve domestic competitiveness which also means better positioning or the ability to better positioning in international markets (when you cannot meet the

criteria of the domestic market you will not be able to meet the criteria of foreign markets either) (Beslać et al., 2013, p. 3-7) but also new types of risk.

The basis of the market economy is competition. In addition to the developed market economies to obtain the maximum profit at the same time stimulate the underdeveloped economy and uncompetitive companies to take measures to increase competitiveness, the acquisition of new knowledge and technology, etc. However, competition and fair competition mercilessly destroy all those who do not achieve the necessary level of competitiveness. Because of this attitude of developed countries to the less developed countries, membership in the free market, what is the EU market, may be, for less developed countries, very troublesome, and very easy such economies can be brought into a state of economic dependence and neo-colonialism.

Today, all developed market economies and international organizations, which are representative of those of market economies, are advocating for a free and single market, but for reasons of their own, as it brings the most benefits to them. If we go little back in history we know that the famous German economist, Friedrich List was not agreeing to the English influence on the introduction of a free trade area for the simple reason that Germany at that time was developing and was not able to compete on equal terms with England.

Free trade advocated by the British, once sharply opposed by the United States. America has built its steel industry by protecting it with tariffs which went up to 100%. Thus, Abraham Lincoln said: "Free trade is a good thing, just a shame we do not have the money for it (Rejnert, 2006, p. 119).

Such a position would, in the deep conviction of the author of this article, should bear in mind the highest number of politicians and economists in Serbia.

And Lord Lionel Robbins said: "It will be wrong if we recommend to the world advice of English economists. What they recommend to the world is exactly what is harmful to apply in own country " (Robbins, 1952).\

It is known that the "United States under the GATT engage unilaterally, were protecting its national interests" (Stiglitz, .2005, p. 215).

In 1995, under the strong influence of the US in the framework of the GATT the World Trade Organization (WTO) was created, which basically stands for free trade and increased international trade, but also the signatory states even after 20 years since the outline of this organization did not agree on full liberalization of trade in agricultural products because it is not in the interests of developed countries. Thus, the United States as one of the most developed countries in the world and continues to insist on free trade and trade without barriers, only to those products, services, etc. in order to achieve the largest uses for themselves. This position is typical of the hegemon who knows how to perform in their own time weakening or the development of other countries, where the stubbornly defending its position as it is the only remaining world power "( Stiglitz, 2005, p. 210).

Guided by self-interest, developed countries have freed their financial markets only at the peak of his financial power. When a country becomes a member of the developed economic integration, such as the EU, then it inevitably must release its

financial markets, although it does not have economic conditions. Free financial market consequently brings the weakening currencies of the weaker economy that escapes to a stronger currency of the stronger economy which eventually results in less developed countries without their own capital.

If we analyze the measures and recommendations that developed countries recommend, and often implemented by underdeveloped, it can be unambiguously concluded that such measures are in complete contradiction with the measures they have undertaken in their own countries when they were less developed [Beslać et al., 2013, 3-7).

From the analysis of EU economic policy clearly be concluded that it applies the principle of England from one hundred and more years ago. It is not difficult to see that it applies one policy in verbal performance, and quite another in practice. The EU administration recommended and advocated a bright future of the united Europe, while the majority of EU countries is the high debt that cannot be resolved, unemployment is on the rise which also cannot solve, the budget deficit is characteristic of all EU countries, and not to talk about the migrant crisis, for which more than a year there is no joint and functional solutions. EU Members do not respect their own rules (egg. The rules on debt, inflation, interest rates, deficits, etc., Which are regulated by the Maastricht Treaty), and they require from other countries full discipline in carrying out certain tasks. Germany, as the most developed country in the EU, was even in 2002 exceeded the criterion of debt and deficit criteria defined by the Treaty of Maastricht (Otte, 2009, p. 162-165). It can be concluded that the path to EU path that can bring many positive results, but also the way that the poor economy can lead to total dependence and neo-colonialism. (Author's note).

### ***OBSTACLES AND TEMPTATIONS SERBIA ON ITS PATH TO EU***

As stated in the introductory part, Serbia has decided and official policies are formulated so that the path to EU has alternative. However, Serbia on that path waits very serious obstacles that were not valid for the countries which had previously become members of the EU or countries which are now candidates for EU membership

Serbia's EU path is very long and is associated with many obstacles. This trip lasts for 16 years, practically since 2000, when it was clearly expressed attitude of the ruling oligarchy that Serbia is committed to EU membership. The first decade of Serbia's EU path was related to an obstacle that can be called „ cooperation with the Hague tribunal, "and it was overcome only when Ratko Mladic, Radovan Karadzic and Goran Hadzic were arrested and extradited to The Hague although they were citizens of other countries.

After overcoming this obstacle, in front of Serbia has set new obstacle, the establishment of a „ good neighborly" relations with its autonomous province of Kosovo and Metohija. This obstacle was overcome only partially by signing the so-called. Brussels Agreement. The signing of the Brussels Agreement which

basically involves the establishment of, state border "on its own territory, the withdrawal of the Serbian state and its institutions from the territory of the autonomous province of Kosovo and Metohija (primarily from the northern part of the autonomous province of Kosovo and Metohija) and in some way the recognition of institutions of self-proclaimed state of Kosovo with the possibility of the formation of the Community of Serbian municipalities, but without defining its jurisdiction, Serbia was in 2016 awarded the opening of a number of chapters. If only Serbia's path towards the EU is observed, the opening chapter good news for Serbia. However, in June 2016, one of the most developed countries of Western Europe, Great Britain, in the referendum has made the decision to exit the EU. This one fact imposes the necessity of recognizing the future new obstacles that will set upon Serbia on the path towards the EU as well as the speed and the justification of the way towards the EU (Author's note).

Future obstacles and temptations of Serbia towards the EU can be defined as general and specific. General obstacles are included establishing "good neighborly" relations with its autonomous province of Kosovo and Metohija, which needs to be finalized by signing the so-called binding agreement. What the agreement should include and what should be its content is not officially defined, but with a high probability it can be concluded that it would imply a de facto recognition of Kosovo's self-declared country. Whereas until now Serbian government or official representative of the state of Serbia is not of the opinion that we should recognize the self-proclaimed state of Kosovo, then the question rises how will Serbia become an EU member if it is set that condition. Also, at the same time the question whether and to what extent should meet the requirements that are set before Serbia on its path towards the EU (egg trade with GMO products, the introduction of sanctions against the Russian Federation, etc.).

On Serbia's path towards the EU, which is the guarantor of the Dayton Peace Agreement, which was largely modified by subtracting the jurisdiction of RS, certainly can be placed as an obstacle that would require the support of the abolition of RS, or its current jurisdiction (eg. The abolition of the police). What are the possibilities for the removal of such obstacles is still uncertain.

As stated on Serbia's path towards EU there are economic and political obstacles. It seems that the economic barriers more easily manageable than political obstacles. The most important specific obstacles that can be set to Serbia on its path towards the EU are:

## ***GLOBAL RELATIONS***

The changes introduced by the new world order and economic globalization, as well as the global economic crisis, which runs from 2007 will inevitably affect Serbia's EU path. What would happen on a global scale is difficult to predict, but it can be quite reasonably suggest that the wealth of the large will increase at the expense of less wealthy or poor. What will be the impact on the flow of economic integration in the world, even in the EU, of wars that are ongoing (Syria, Iraq),

whether to continue the war in Ukraine and whether to start a new war, to find how will end migrant crisis it is hard to overlook, but it is quite certain that all of these processes have an impact on relations in all economic integration, especially in the EU to their internal organization and expansion. Therefore, global processes can be both encouragement and an obstacle in the way of Serbia towards the EU.

### ***COUNTRIES, NEIGHBORS AS OBSTACLES***

On the way to the EU, Serbia can expect that its neighbors, members of the EU, set up certain obstacles. At the opening of chapters 23 and 24 it has already been done by Croatia. Serbia was asked to repeal the law that allows courts in Serbia to judge all those who have committed war crimes in the former Yugoslavia. Although these chapters were opened without the abolition of the law, this obstacle is not completely removed. Stand of the Croatian officials is that Chapter 23 will not be closed while the law in question does not change, and that Serbia should not prosecute Croats who committed war crimes in the former Yugoslavia. Also, Croatia insists on improving the rights of Croatian minorities and the full implementation of the decision of the Hague Tribunal.

In addition to the Croatian seems to be that from Bulgaria and Romania can expect similar requirements, particularly with regard to minority rights, and these two states represent a potential threat to set certain obstacles. Bearing in mind the way in which the open chapters 23 and 24 can be concluded that if only one country, an EU member sets certain conditions then the EU as a whole can eliminate this obstacle, but if it would be more countries with the same or similar requirements, then such an obstacle is hardly manageable.

### ***RUSSIA AS AN OBSTACLE***

It is known that Serbia and the Russian Federation have decades of friendship and political and economic relations. At this time from an economic point of view Serbia and Russia have signed a preferential trade agreement that allows Serbia to export 95% of its products to Russia, or to the Customs Union Russia, Belarus, Kazakhstan, Armenia and Kyrgyzstan free of duty. Such an agreement has no other country.

Annexation of Crimea to Russia has resulted in the introduction of sanctions by the EU against Russia. Membership in the EU implies and harmonization of foreign and security policy, which means that Serbia will at some point have an obligation to harmonize its foreign and security policy with the EU, which will result in the introduction of sanctions against Russia. If it happened such a scenario, it is realistic to expect that Russia would terminate the agreement on preferential trade that would cause to Serbia irreparable economic damage. Also, EU membership by the itself shall cease the agreement to have effect so that from that moment on all Serbian products for the Russian market will be lost preferential status, and thus become more expensive for the least of amount of duties and by that more uncompetitive. Other economic aspect of harmonization

foreign and security policy with the policy of Serbia and the EU to impose sanctions Russia would have probably resulted in a restriction or complete abolition of energy supplies from Russia to Serbia or under unfavorable conditions, which would also have far-reaching negative consequences for the economy and population of Serbia. Thus, Russia as a friend and a very important economic partner of Serbia, to which the EU sees as the enemy, will be of great obstacle on Serbia's path to EU.

## ***GREAT BRITAIN***

Great Britain as an obstacle to Serbia on its path towards EU emerged, it can be said, from nowhere. The Great Britain in June 2016 decided in a referendum on leaving the EU. This decision of Great Britain to Serbia can have both negative and positive consequences. Exit of Great Britain from the EU for Serbia can produce additional difficulties on the road to full membership in the EU, at the same time can produce and accelerate the path towards the EU. Difficulties are found in the fact that the EU objectively after Brexit must deal with the determining of new issues, especially economic relations with Great Britain, as well as the matters for which the Great Britain decided to exit the EU and adopt various measures to prevent other EU countries to follow example of Great Britain. The very fact that such a strong economy and strong political factor made the decision to exit the currently most powerful economic integration in the world inevitably raises the question of the organization and reform of the EU. Therefore, it can be reasonably assumed that enlargement issues will be one of the priority issues. However, it seems that the idea of a united Europe for two major EU countries (Germany and France) remains the dominant idea. In such a factual situation can be expected to further enlargement pay due attention to, even a priority in order to reduce the one hand the motives of other countries for exit from EU membership, on the other hand to compensate for, or reduce the loss occurring exit of Great Britain from full membership in the EU.

## ***EU AS AN OBSTACLE TO SERBIA ON ITS PATH TO EU***

Exit of Great Britain from the EU is partly a consequence of the lack of democratic capacities in the EU. The vast Brussels administration, which is funded by various foundations, but the most significant source of financing are contributions member countries, not elected by anyone nor is changeable. The basic principle on which the EU is built is the principle of supranationality which reduces and endangers national sovereignty of member states.

The lack of democratic capacity and arbitrariness of the most important EU member states is seen by the fact that after the adoption of the referendum on the UK exiting the EU has not held the EU summit but were met Germany, France and Italy. It is obvious that the EU without the UK is not the same as the EU with Britain. Exit of Great Britain from the EU must lead to reform EU. Since the EU

now consists of 27 countries with different levels of development Economics, and since the basic concept of supranationality, the reform of the EU can be carried out in several directions, such as: the concept of multiple groups of countries (more circles or more speed), the concept of Union regions or federalization of national countries. Depending on the direction towards which will take place the reform of the EU, which will certainly and inevitably occur, will also depend on Serbia's path towards full membership in the EU. Also, the procedures that apply to the so-called. „ Accession negotiations "(although there are no negotiations, there are only the tasks to be fulfilled on the basis,, take it or leave it") define the decision-making based on consensus of all member states and where virtually every state has the right of veto, in which case there is no closing chapter nor EU membership.

### ***SERBIA AS AN OBSTACLE TO SERBIA ON ITS PATH TO EU***

The ruling oligarchy in Serbia, which has been in power since 2012, has defined that Serbia's EU path has no alternative. How much Serbia will be ready in the future to meet the homework given by EU depends on many factors, but primarily on the dynamics and level of economic development. Only economic growth and development can provide resources for reforms of Serbia that are expected and required on the path towards the EU. If Serbia does not have its own resources, without further borrowing, the implementation of reforms during the adjustment of the real sector, public sector, financial sector, the rule of law, democratic capacity and so on. Serbia will in itself be an obstacle on the path to EU. At the same time, if the adjustment of the economic and political system performed at the expense of the public debt, then Serbia in this process nor will succeed nor could arrive in any future circles of EU member states.

Although the ruling party in the elections received majority support of voters cannot be considered that this support is also a commitment to a referendum for path to the EU. The Parliament of Serbia in 2016 is composed of euro-fanatics and euro-skeptics deputies, but also in prominent public figures can vary and the euro-skeptics and euro-fanatics. Will euro-skeptics interfere with Serbia's path towards EU remains to be seen, but what is noticeable is that the euro-skepticism in Serbia is growing, especially after exiting Britain from the EU. That is why Serbia can be in itself an obstacle on the path to EU.

### ***NATO PACT AS AN OBSTACLE***

Although membership in NATO is not directly linked to EU membership indirect certainly is. In fact, most of the EU countries are a member of NATO. NATO openly wants to move closer to Russia. The territory of Serbia is one of the territories in which to install the NATO forces would mean getting closer to Russia. Therefore, it is not impossible to imagine that the EU member states that are also members of NATO will insist on Serbia's membership in NATO, under the pretense of collective security. Although the “collectively” safety is very

important, as a positive consequence of membership in NATO, Serbia's membership in NATO could have both economic and political negative consequences. It is impossible to abstract the fact that the NATO forces without UN Security Council approval, bombed Yugoslavia (Serbia) continuously for 78 days, and that on that occasion the damage done by the hundreds of billions of dollars. Therefore, the membership of Serbia in NATO can be seen through the folk saying: „ criminal returns to the scene of the crime "(author's note). In addition to this, political-economic element is very important. Specifically, NATO membership would entail the introduction of the weapons and military equipment and other standards according to NATO standards, for which Serbia has no assets. These funds would certainly have to be provided from borrowing, which is a further deterioration of the economic situation in Serbia. That is why NATO can be a huge obstacle for Serbia on its path towards the EU.

### ***KOSOVO AND METOHIJA AS AN OBSTACLE TO SERBIA ON ITS PATH TO EU***

As already mentioned 23 countries of the current EU members have recognized the unilaterally proclaimed independence of the autonomous province of Kosovo and Metohija. The commitment of the EU to sign a binding agreement and the conversion of the administrative borders to the state border, remove Serbian institutions from Kosovo and Metohija, and the establishment of good neighborly relations imposes thinking, whether at the time of the decision on admission to full membership of the EU will be set request for formal recognition of the self-proclaimed country,, Kosovo ".If that happened, that request Serbia could not and must not meet and it would be the end of the path towards the EU. However, if that happened it would not do too much damage because then Serbia would become economically strong enough to establish high-quality bilateral economic and every other relationship with the EU countries.

### ***SHORT SUMMARY***

Serbia's path to EU membership certainly is and will be linked to the many obstacles of which the most global ones are mentioned earlier in this chapter. To that path has its closure, Serbia must always bear in mind that the path can be terminated. However, despite this, the authors of this study believe that on that path we should be persist, not only for full membership in the EU but because this is the way we can raise the standard of living. In fact, neither today nor in the future for a long time the economic and political elite in Serbia will not be able to bring their economic and political system to levels that will allow a decent standard of living.

Bearing in mind that Serbia's EU path may be terminated due to failure to fulfill certain conditions (recognition „ self-proclaimed state of Kosovo”,the introduction of sanctions against Russia, entry into NATO, etc.) Serbia at the same

time, the implementation process of accession to full membership in the EU, in the opinion of the author of this work, must have an alternative. This alternative is the development of relations, both economic and political integration with other economic and powerful countries such as Russia, China, the countries of BRICS.

### ***AN ALTERNATIVE ROUTE SERBIA ALONG THE PATH TO FULL MEMBERSHIP IN EU***

In the previous chapter in the shortest it is exposed and explained why the path to full membership in the EU is justified way and what are the advantages of EU membership. However, the path of the Serbian country towards full membership in the EU is paved with special specifics, nor are they included in the Copenhagen criteria, nor were valid for other countries that are now EU members.

The authors are convinced that the euro fanatics and the ruling elite are irreparably wrong when they advocating for the EU without alternative. The authors believe that there must be an alternative and it exists.

The basic characteristics of the EU are open, or liberalized markets of all factors of production as well as cooperation (read the acceptance of obligations), policy in the field of security and foreign affairs, justice and home affairs. If we stick only to open and liberalized market, then the full membership of Serbia in the EU completely uncertain. The differences in the development of most developed countries of the EU and Serbia are huge and almost insurmountable. According to some data, Serbia at the global level for the EU lags behind 5 to 6 generations of technology. If this level is on an accelerated basis, and with the help of the EU could reach in 10 to 15 years. It is quite a reasonable question at what level of technological developments will be the EU at a time when Serbia reached the current level of development of the most developed EU countries. Bearing in mind that the EU will in the future, due to the level of development of individual EU member countries, due Brexit etc., experience the internal reform of the EU It is quite a serious question what the organizational form and content of the EU will be in the moment when EU member countries decide that Serbia is welcomed into the full membership. Therefore, an alternative route is more closely connect to other economies and other economic integration. Countries of Brics and the countries of CEFTA agreements are integration with which Serbia can achieve high economic cooperation as an alternative to the uncertain path to the EU.

*Table 6: Overview of the population, area and per capita BRICS countries and Serbia*

| Ordinal num. | Country            | Population    | Area in km <sup>2</sup> | GDP percapita (PPP) |
|--------------|--------------------|---------------|-------------------------|---------------------|
| 1.           | Brazil             | 202.656.788   | 8.514.877               | 12.100              |
| 2.           | Russian Federation | 142.423.773   | 17.098.242              | 25.400              |
| 3.           | India              | 1.251.695.584 | 3.287.263               | 6.200               |

|     |                        |               |           |               |
|-----|------------------------|---------------|-----------|---------------|
| 4.  | China                  | 1.367.485.388 | 9.596.960 | 14.100        |
| 5.  | South Africa           | 53.675.563    | 1.219.090 | 13.200        |
| 6.  | Bosnia and Herzegovina | 3.867.055     | 51.197    | 10.500        |
| 7.  | Montenegro             | 647.073       | 13.812    | 16.100        |
| 8.  | Macedonia              | 2.096.015     | 25.713    | 14.000        |
| 9.  | Moldova                | 3.546.847     | 33.851    | 5.000         |
| 10. | Albania                | 3.029.278     | 28.748    | 11.900        |
| 11. | Serbia                 | 7.176.794     | 77.474    | <b>13.700</b> |

*Source: The World Factbook - CIA (access 07/21/2016).*

The above review shows that the GDP per capita in the countries of BRICS does not deviate much from GDP per capita in Serbia. GDP per capita speaks among other things, the level of development of the country, which means that the countries of BRICS at about the same development as well as Serbia. Cooperation with countries of BRICS is sure alternative to EU membership for at least two reasons: The EU membership would jeopardize the position of Serbian agriculture, because then she would be faced with highly subsidized agriculture of the EU countries (France, Germany), which is evident from the case of some countries that have become members of the EU (Hungary) (Petrović, 2014, p.218-220). The current flows exchange with the Bricks show that the most developed economic relations are with Russia, then China, and unacceptably low economic exchanges with India and Brazil. For this reason, increase in trade with these countries is quite possible and necessary objective, and objective alternative to Serbia's path towards EU membership. Also, the amount of GDP per capita of CEFTA countries is about the same as the GDP per capita of Serbia and there is the possibility of exchange until it reaches the competitiveness with developed countries.

*Table 7: Overview of resources Customs Union Russia, Belarus, Kazakhstan, Armenia*

| Ordinal number | Country            | Area in km <sup>2</sup> | Population  | GDP (PPP) per capita u \$ |
|----------------|--------------------|-------------------------|-------------|---------------------------|
| 1.             | Russian Federation | 17.098.242              | 142.423.773 | 25.400                    |
| 2.             | Belarus            | 207.600                 | 9.589.689   | 17.700                    |
| 3.             | Kazakhstan         | 2.724.900               | 18.157.122  | 24.300                    |
| 4.             | Armenia            | 29.743                  | 2.967.004   | 6.300                     |
| 5.             | Kyrgyzstan         | 199.951                 | 5.664.939   | 3.400                     |

*Source: The World Factbook - CIA (access 07/21/2016).*

Given the number of inhabitants and the level of GDP per capita of the Customs Union of Russia, Belarus, Kazakhstan, Armenia and Kyrgyzstan, as well as the concluded agreement on preferential trade with the Customs Union is quite justified to speak about the need for tighter connection the Union as an alternative way to the EU. These alternatives do not mean the exclusion of EU economic exchange with Serbia. The conclusion of bilateral agreements with individual EU countries is also one of the most important alternatives in case the path to the EU is terminated for any reason. The bilateral agreements may be in a specific way regulated for economic relations with individual EU countries since all EU countries do not have the same level of economic development and therefore unique conditions cannot be effectively applied to all countries.

Every goal can be achieved in many ways but it is only a matter of path that it would be accomplished. This in fact means that every path has some alternatives. If a goal does not have alternative, and if for any reason there is a failure to achieve this goal, activity which served to this goal is then returned to the beginning and everything done by then collapse. Therefore, the authors of this study think that every path as a path towards the EU must have an alternative. The authors of this study believe that the path to full membership in the EU must be used for stimulating economic growth and development for the improvement of the entire social life and to create the conditions for Serbian citizens to live in a country of high living standards. And this time, that goal should not be abandoned. But achieving this goal is certainly not unconditionally accepting all decisions of Brussels, or worse taken as the Brussels' decision as its own decision. Therefore, along the path towards the EU, there must be an alternative, and, it according to the authors of this work, the conclusion of bilateral agreements for the EU member states. For Serbia is more acceptable bilateral agreements for the simple reason that multilateral contracts define the powerful taking care primarily about their own interests.

Furthermore, cooperation with the BRICS countries which are open to economic cooperation and where Serbia can achieve its economic goals without any political conditions. Cooperation with the countries of CEFTA agreement countries and third world countries is also an opportunity for economic recovery, growth and development of Serbia. And finally it is necessary to rely on their own resources (agriculture, tourism, energy, etc.). Thus, Serbia needs and has an alternative.

## ***CONCLUSION***

The European Union is a powerful economic organization and its full membership is to be pursued. The path to the EU should be a tool for Serbia to become institutional, legal and market-regulated country. Full membership in the EU should enable first of all the freedom of movement of factors of production, protection of the rights and civil liberties. Previous experience with the fulfillment of all the conditions and tasks on the path to EU show that this path cannot be the path without alternative. The path to the EU should not be paved only with the decisions of Brussels and unquestioned acceptance of all conditions, even those that clearly and unambiguously damage to the state and citizens of Serbia. Along

with the movement towards full membership in EU Serbia must develop and nurture economic and political relations with other individual countries, other economic, financial and political organizations. This actually means that the path to the full membership in the EU is not the only path and path without alternative, but path that can lead to full membership, but also the path that can be terminated at any stage. Therefore, the state of Serbia should have other roads, other alternatives in case the path to the EU is being questioned for any reason, and those reasons can be numerous and unpredictable at the moment. These reasons range from the fact that situations may arise that Serbia cannot and should not accept some conditions of EU, such as recognition of secession, self-proclaimed state of Kosovo", to the fact that the termination of contracts and other alliances with other countries (Russian Federation), to the fact that the EU might not exist in the form we know today when Serbia fulfills all the conditions for full membership. For just these few reasons, Serbia needs to have an alternative path towards the EU.

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## **IMPROVING THE ECONOMY – THE PATH TO THE EUROPEAN UNION**

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### **ABSTRACT**

*In this paper, attention is focused on the importance of economic integration for a single economy. The theoretical concept of the optimum currency areas suggests that regional or economic integration is an important element in the improvement of the economy, if certain criteria are met! In developed economies, the higher the level of fulfilment of the criteria, the greater the benefits of the integration. Serbia, as underdeveloped economy, will suffer major damages in the integration until it changes the structure of the economy (relying on the horizontal intra-industry trade and through technologically more intensive production process) and adapts to the competitive market. Serbian economy will be faced with unfavourable and imposed deflationary adjustment process, which will deepen the low GDP, low wages and high unemployment. At the same time, a high degree of integration is not a guarantee of overall progress when there is no full coordination of economic policies within the integration, as is the case in the EU. Therefore, Serbia should improve the economy, change the structure of production and trade and take advantage of the open market. By achieving these goals it will be easier and cheaper in the process of adjustment to the EU, and simultaneously a good chance for Serbia to realize greater benefits than costs in the future.*

**Key words:** Strengthen Economy, Economic Integration, Intra-Industry Trade

**JEL Classification:** E06, F04, O03

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## ***INTRODUCTION***

This paper surveys the differences between criteria of the optimum currency area (OCA) and criteria of convergence through its main issues. I will also make systematic reference to the European experience with economic and monetary union (EMU), which is the most important example of recently established currency unions and the one to which the OCA theory has been most frequently applied.

The Theory of Optimum Currency Areas suggested serious concerns about the euro project. The advantages of a common currency are obvious, but hardly measurable: reduced transaction costs, elimination of currency risk, greater transparency and possibly greater competition since prices are easier to compare. Contrarily, the disadvantages of a single currency come from loss of flexibility and the loss of a mechanism for adjustment. There is a major difference between adjustment processes within a currency area even we talk about currency area that has a single currency or a currency area with more than one currency. This means that there is a difference between international adjustment and interregional adjustment even though we talked about fixed or flexible exchange rate regime. Mead (1957, pp. 385) believed that there was not sufficient factor mobility to consider Western Europe a region, while (Scitovsky, 1959, pp. 1104) held that with monetary unification would come greater integration, provided measures were taken to facilitate labour mobility. Krugman clearly emphasizes “a paradox” – the adoption of euro will lead member countries to fall in an extreme specialized level, leading to further lack of diversification and it will leave these countries to be worse off (Krugman, 2013, pp.439-448). On the other side, Mongelli (Mongelli, 2002, pp.26) insists on more benefits than costs in Euro Area but it would require a long period. He emphasizes that the Euro Area might be suitable for a common currency because, even though there are some structural differences among countries, they can be managed overtime and optimal conditions can be achieved.

Explanation of the regional integration in this text is close to the approach of Yüceol (Yüceol, 2006, pp.63), who emphasized that the convergence criteria are more concerned with examining transitory cyclical movements in financial indicators, rather than concentrating on fundamental convergence in real economy. The evidence shows that the lack of enforcement of the ‘convergence criteria’ led to an unsustainable macroeconomic situation in the EU. This is because the achievement of convergence depends on particularly certain institutional and structural features and the degree of development of market mechanisms.

During the 1980’s Massa (1983, pp.41) was emphasized that economic policies should be structured so that they do not themselves create artificial barriers to integration and so that they countervail the artificial barriers that would otherwise result from defects in the operation of market mechanisms.

The operation of market mechanisms are over-represented in developed countries than in less developed countries. Hence, there is a difference in obtaining benefits and covering the costs of regional integration, when we look at the

member states according to the degree of development of the economy. Small and underdeveloped countries have far more macro-economic problems whereas the effects of market mechanisms are less manifested within the economy. Hence, the entry of these countries in regional integration is doomed to failure – the costs overcome benefits and deflationary adjustment process would be imposed.

When the country is developed, the benefits outweigh the costs of regional integration. Therefore, each country before joining a regional integration should improve the production structure and promote intra-industry trade.

The rest of the paper is organized as follows: In *Section II* I'll explain the differences between the criteria of the Optimum Currency Area and the convergence criteria of the Maastricht contract. This part relates to the benefits and costs of regional integration and refers to the adjustment process of individual economies. In *Section III* and *section IV* I'll analyse the structure of Serbian economy (SICT sectors of industry) and the structure of trade (inter- and intra-industrial trade). At the same time, this is the best way to test the ability of Serbia to improve the structure of production and international trade, but also a chance to look at opportunities for foreign direct investment in Serbia. In *Section V* I'll provide some concluding remarks. Annex shows the sector's comparative advantages of Serbian economy.

## ***OCA CRITERIA VERSUS MAASTRICHT CRITERIA***

I will start with a simple question: Is the EU a myth? The EU is just a regional integration and nothing more than that. There are many, but the EU has gone the furthest of all. It almost reached a peak! It is located between 4<sup>th</sup> and 5<sup>th</sup> stage of integration (Jovanović, 2006, pp. 23). In fact, the EU has ended with the economic union but without success with a full economic union. This means that the EU operates without mutual customs and it has a common customs tariff, the mobility of production factors and the harmonization of economic policies, but not the full integration of economic policies. From that point of view Jovanovic (Jovanović, 2006, pp. 23) explained five stages of regional integrations and their five policy measures. In the first stage, European countries started with Free Trade Agreement and the abolition of customs duties. The second stage is set with the customs union and common external tariffs. In the third stage, a common market is followed by the mobility of production factors. With the fourth phase, economic union includes the harmonization of economic policies. Finally, in the fifth stage, the full economic union requested the full integration of economic policies.

Although the EU is successful integration, there are numerous problems that have shown the true face during the global economic crisis. The gap between potential and optimum output is increasingly widespread in recent years since all available resources are not employed, which leads to an increase in unemployment far above the natural rate of unemployment (Ristanović, 2014, pp.4). As a consequence, there is a decrease in aggregate demand and pressure on deflation. These problems will continue, as in a number of Euro Area countries, such as Italy,

Spain, Ireland and Greece, there is a reduction of potential output. All these countries are found in the belief that they will experience asymmetric economic shocks requiring independent exchange rate policy to deal with them.

So, how has the EU slid into such problems? The problem lies in the divergence of the current EU concept of the fundamental concept of the optimum currency areas. As we know, this theoretical approach of the Optimum currency areas is associated with Mundell's work (1961). The main idea was to define until what extent some countries (ex., EU countries) should give up from their independent monetary policy, in order to gain from micro and macroeconomics benefits of a shared currency. In his own approach he explained the process of integration of the countries in the economic area under the condition that the key criteria must be fulfilled. There are the following criteria:

1. Labour mobility;
2. Openness;
3. Diversification;
4. Financial integration.

This is a clear environment for economic growth and development on the basis of economies of scale. Monggeli (Monggeli, 2002, pp. 33) adds microeconomic efficiency, which principally results from the increased usefulness of money – i.e., the liquidity services provided by a single currency circulating over a wider area – as a unit of account, medium of exchange, standard for deferred payments, and store of value. Only full compliance with these criteria can guarantee progress and integration of all economies individually, increase the convergence and raise living standards. But, these criteria were largely dismissed at the time of the creation of monetary union, with many assertions that the theory was wrong and sometimes irrelevant. And, that's the main problem – neglect of fundamental criteria.

The EU has achieved the last three criteria, but not the first one (Miljkovic, 2007, 290-292), perhaps the most important one for regional integration and the member states. The degree of openness is related to the intensity of international trade. The larger intension of trade allows small changes in prices that may affect the relative prices of export and import and lead to a new equilibrium. Also, growing diversification reduces pressure instability of export revenue. At the same time, diversified production gives greater price stability and increases employment in the economy. Finally, a greater financial integration allows small changes in interest rates contributing to higher capital movements and positive effects on the equilibrium of the balance of payments.

The EU is faced with the problem of *Labour mobility*. When the country is faced with external imbalance in the form of reduced exports (current account deficit) the balance can be reached only through a deflationary adjustment mechanism – reducing the cost and the output and increasing the unemployment. Costs will be reduced only if there is a high mobility of workers. In the EU, until recently, there was almost no possibility for a country with a higher labour demand

to accept workers from other countries of the integration, who are faced with excess labour supply.

However, during the process of accessing similar macroeconomic outcomes were not represent a satisfactory results for all Member Countries. Hence, the determination of which Member countries are suitable candidates for a single union is supposedly achieved by their attainment of the four Maastricht **convergence criteria** established in the Maastricht Treaty:

1. Price stability – If the rate of the candidate Member State does not exceed that of the best Member States by more than 1.5%, the criterion of price stability (the inflation rates of the three best performing Member States) is fulfilled;
2. Stability in public finance – The candidate Member State must have **sustainable government finances**. In other words, the Member State's budgetary position must be without a deficit that is excessive (budget deficit by 3% GDP, public debt by 60% GDP);
3. Participation in the exchange rate mechanism of the European Monetary System – A Member State applying to introduce the euro must have participated in the European exchange rate mechanism for at least two years. In addition, it must not have experienced serious tensions in its currency rate during those two years;
4. Convergence of (long-term) interest rates – In order to fulfil this criterion, the interest rate of the candidate Member State must not exceed the reference value (the average of the long-term interest rates of the three best performing EU Member States in terms of price stability) by more than 2 %.

This is about completely different criteria which do not correspond to the basic concept of the optimum currency areas. Unfortunately, the problems in the EU begin and end with the numbers, something like, whether a country has broken a criterion or not? Only a few countries have complied with all the convergence criteria in 1999 when the EU officially began to function. These are the following countries: Luxembourg, France and Finland. Other countries have been more or less close to the limit values of criteria or have had an acceptable trend, except Greece. Essentially, it means, the problems remain! But, let's go back to the regional integration.

According to many comprehensive survey and the empirical studies of EU as an example of optimum currency area, there are still important problems in supporting and confirming the theoretical issues. It is widely accepted, according to the terms of properties of optimum currency area, that the member countries in the EU do not constitute an optimum currency area to the extent that regimes of the USA do. In terms of all conditions, especially in real indicators, there is a gap between member countries.

The idea, here, is to focus on the criteria of the optimal currency areas. For Serbia, it must be the most important issue. The values of macroeconomic variables will change significantly in the near future, but it will always remain the essential question whether they are placed on the theoretical basic or the set values (convergence criteria).

All the countries that start with regional integration expect to gain far more benefits than costs. Entering the regional integration, the country gets benefits from a fixed exchange rate regime, but also from low transaction costs, lower inflation, larger market, the smaller impact of speculative capital, etc. On the other side, the costs are reflected mostly in the loss of two important economic policies – monetary policy and exchange rate policy. This means that the process of adjustment is only possible with measures of fiscal policy (See more in Edwards, Magendzo, 2003; Branson, Healy, 2005). But today there are constraints in using fiscal measures for EU members, which are more painful for smaller countries than for large ones. The government has no ability to use fiscal measures for increasing economic growth and reducing unemployment. The use of expansionary fiscal measures for stimulating the economy could affect the increase of prices and loss of competitiveness. At the same time, the mechanisms of foreign trade would not be fully manifested. This means that only coordinated fiscal action by all members can give expected positive results (Miljkovic, 2007, 293).

A prerequisite for the success of regional integration is in the similarity of the countries in the integration. Similarity refers to the degree of development and the structure of the economy. Large and developed economies can cope with the shortcomings of integration, while the smaller and poorer countries are facing with deflationary adjustment process (*mechanism for adjustment*). This process is very bad for the last economy because it leads to a decrease of GDP, decrease of prices and wages, and increase of unemployment. You will agree – **the high cost of entry into the integration**.

However, if the country has adapted the structure of commodity trade within the structure of trade into integration, then everyone could expect benefits. For example, the creation of the common currency euro produces an increase intra-industry trade in Euro Area. The advantage is that the trade of these types of products (medium-intensive and highly intensive) brings about the growth of the economy in the medium and long term. It is a great opportunity for Serbia to change the structure of production and trade before it becomes an EU member.

### ***STRUCTURE OF THE PRODUCTION AND INTERNATIONAL TRADE IN SERBIA***

The structure of the economy of Serbia and the EU Member States varies considerably. In such conditions, the entering into regional integration means greater losses. So, we have enough time to prepare for entry into the EU – improve the structure of economy, strengthen competitiveness and raise standard of living. Then the adjustment process will be easier and cheaper.

For Serbia, it is important to increase the level of integration with the countries of currency area, i.e. the EU members. It is a process of convergence (*chat-up process*), which involves:

1. Transformation of inefficient enterprises in efficient enterprises, and

2. Transformation of the economic structure – the transition of resources and low technology-intensive products to high technology-intensive products.

This is the only way for Serbia to realize greater benefits than costs in regional integration. Increasing productivity and economic growth are key issues in achieving this goal. At the same time, the EU is looking for serious and compelling economies for its members. It is not the case only for Serbia, but also for the common benefits (expanding the market and increasing the production of differentiated products).

For now, Serbia must rely on the Revealed Comparative Advantages – RCA. This means that it can expect the benefits of the inter-industry trade. At the same time, it is necessary to gradually increase the technological intensity of production. In other words, it is necessary to increase the ratio of capital equipment to a higher level. Only then Serbia can achieve economies of scale and expect greater benefits from the intra-industry trade, which already takes a large percentage of trade in the EU.

Serbia offers opportunities for multi-level investments due to its comparative advantages. Serbia possesses Revealed Comparative Advantages – RCA in the foodstuff industry (*sector 0: Food and live animals*). A deeper analysis of 50 product groups with the highest share in merchandise trade has showed a growing number of products with positive RCA, where Serbia recorded a comparative advantage. In 2013, it has recorded a 37 product groups with positive RCA and only 13 product groups with negative RCA, which is the best result since 2001. Analyzed by industry sectors, Serbian economy has the most product groups with comparative advantages in *sector 6 Manufactured goods classified chiefly by material* and *sector 0 Food and live animals*, right behind the *sector 9 Commodities and transactions not specified in the SITC Rev. 4*, *sector 7 Machinery and transport equipment*, and *sector 5 Chemicals and related products, n.e.s.* (Table A1 in Annex).

If viewed according to the concept of factor intensiveness, the advantages are realized firstly with primary products (*sector 0: Food and live animals*, *sector 1: Beverages and tobacco*, *sector 3: Mineral fuels, lubricants and related materials*) and the production in low-tech industry. However, the last few years have seen improvements in the processing industry due to a greater participation of production of high-tech intensive products (high-tech industry) (*sector 6: Manufactured goods classified chiefly by material*). Serbia is not capable of realizing the transformation of the economic structure by itself and introducing a production process with diversified products in a basket of export products. The mutual benefit would be even greater if the production process in Serbia could be elevated at, technologically speaking, a higher level because this would provide a greater volume of the intra-industry trade which would reduce the costs of adaptation to the current international trade structure.

The coefficients of dynamics of export-import structure of the whole economy achieved improvement in the reporting period (column 2 in Table A2 in Annex). Analysing the sector coefficient dynamics, change in the structure of exports and imports shows the following sectors as important for the Serbian economy: *Sector 0: Food and live animals*; *Sector 1: Beverages and tobacco*; *Sector 2: Crude materials*,

*inedible, except fuels; Sector 4: Animal and vegetable oils, fats and waxes; Sector 7: Machinery and transport equipment and Sector 8: Miscellaneous manufactured articles.* During the transition period in Serbian economy two sectors (sector 7 and sector 8) of the manufacturing industry have improved the external structure.

Intra-industry trade is an important issue for two reasons: (1) the amount of the adjustment costs and (2) future benefits for the economy. The advantage of Serbian economy is reflected in the increasing intra-industry trade in total trade in recent years (about 2/3). Growth in intra-industry trade is result of a larger share of vertical intra-industry trade (column 3 in Table A2 in Annex). In other words, this means that there is a small proportion of horizontal intra-industry trade, which is associated with the growing economies of scale, high degree of differentiation related products in the production and different varieties of products in consumption. Therefore, Serbia has to increase the share of horizontal intra-industry trade, which implies a higher proportion of differentiated products in the export structure. For example, some parts of *Manufacturing* have related a higher share of horizontal intra-industry trade, which is linked to the growing scope and diversified products. At the same time, this would increase the volume of external trade between Serbia and rest of the world.

In all sectors of the economy (except in *sector 7* and *sector 0*) growth of intra-industry trade is mainly based on growth of vertical intra-industry trade. Thus, Serbia has an unfavourable picture in terms of overall export competitiveness of the economy and the level of production specialization. At the same time, it points to the higher costs of adjustment, both from the economic point of view. It should be noted that any intra-industry trade carries lower costs of adjustment of inter-industry trade, which gives a clear signal that Serbia should change the structure of the exchange of products and adapt the structure of the exchange of developed countries.

The relative trade advantage index, RTA, (column 4 in Table A2 in Annex) is difference of two similar measures, the relative export advantage index, RXA, and relative import penetration index, RMP. The comparative advantage revealed by RTA is implicitly weighted by the importance of the relative export and import advantages. A positive RTA value indicates a competitive advantage and a negative one a competitive disadvantage (Frohberg, 1999, pp. 58). These indices show that following sectors were dominant in the reporting period: *sector 0* and *sector 4*, as well as *sector 2* and *sector 6*.

The biggest disadvantage of the Serbian economy is linked to the poor range of exports. Actually, Serbia exports resources, primary products and low-intensive products. These are sectors where Serbian economy has the comparative advantage (*sectors: 0, 1, 2 and 6*), which are easy to lose. Therefore, Serbian interest should be concentrated to flexibility of the factors of production rather than their availability. The flexibility of the labour force is viewed through Total Factor Productivity (TFP), also called multi-factor productivity. TFP is a measure, by the Solow residual, of the efficiency (not amount) of all inputs used in a production process. It explains variations in factor utilization – labour effort and the workweek of capital.

Even if there is no structural change in fundamentals (e.g., no increase in intra-industry trade), national outputs become more correlated. The conclusion is

that the Optimum Currency Area criterion may be satisfied *ex-post* even if it fails *ex-ante* (Corsetti, Pesenti, 2002, pp. 23). These advantages can utilize only for economy with a strong export-oriented private sector.

The process of convergence is a long-time process and it takes time in order to close a gap between countries (Rajkovic et al., 2013, pp. 68) in their paper explain the consequences of convergence in price level and in real income. They show that Serbia needs to increase economic activity more than EU countries. But such higher activity will not only increase the real income (standard of living), but will have inflationary pressures. Such process consider precondition for fulfilling some basic standards in economy, for example relative price-level adjustment.

Previous experiences of the EU countries during the process of the regional integration suggest that there were conflicts in which domestic interests may prejudice the policy coordination and the common interests of the Union. This was especially obvious during the financial crisis, and then the migrant crisis, when the concept of the EU was shaken.

### ***CHANCES FOR SERBIA***

Macroeconomic environment and investment climate in Serbia were promoted in recent years. This is an opportunity Serbia should not miss.

The liberalization and privatization at the beginning of the transition, strong economic growth during the crisis and recently gained status of candidate for EU membership contributed to an enhanced rating of the Serbian economy and higher level of investment ambient security. The support programs and IMF and WB arrangements have contributed to the system stability and improvement of the investment climate in the last few years. The current ongoing reforms provide a clear picture of Serbia in the role of a reliable partner and provide guarantees for continuous bilateral cooperation. This is supported by favourable rating list results provided by international organizations (credit rating agencies, WEF, EBRD, WB).

The areas for potential increased international cooperation are free-industrial zones in Serbia and mutual presence on third markets with the broader use of free trade agreements. Dozens of these agreements have been signed in the field of regional cooperation between the commerce chambers and various regions in EU. There are also numerous projects which are being implemented pursuant to the Republic of Serbia Administration Decree relating to the conditions and manner of attracting direct foreign investments consequently reducing the investors' risks and enhanced investment security. In recent years, the government has been implementing an active tax policy which is stimulus in character and is favourable to the employers. At the same time, Serbia has one of the lowest tax rates regarding company profits, reduced employee wage contributions and certain tax rates have not been changed for years despite the crisis pressures. The new Labour Act leans towards increased flexibility for the workers, protecting the interests of both the employers and employees. In this way, the government has demonstrated

determination to promote economic growth and development, develop the investment climate and create greater employment.

Serbia still offers foreign investors a few areas and segments where they could take greater participation on the Serbian market with considerable opportunities for investments such as agriculture and green technologies, logistics and transport, as well as bilateral agreements on the expansion of cooperation on scientific basis. The EU finances such projects and provides substantial funds. The bilateral cooperation is promoted by a growing number of foreign companies, commerce associations and regional centres, which are interested in various forms of bilateral cooperation.

Surely, the best reference for potential investors is the experience of the foreign companies which do business on the Serbian market. According to the foreign businessmen, Serbia's greatest advantage, in comparison with the regional countries, lies in the qualified labour, natural resources and raw material, and free trade agreements – particularly with Russia and Turkey. They emphasized the favourable tax system which offers stimulus for foreign investments depending on the amounts.

Serbia needs a partner with performances of a great and developed economy such as Italy or Germany primarily due to its successful industry, great global brands, high technical standards, quality and safe products, advanced technology (ICT), and specialized production processes. This is an area with potential numerous mutual interests. As for Serbia, it is possible to transfer know-how and implement technologies within the Serbian economy and the *spill-over effect* would bring new investments, production plants and employment possibilities. At the same time, the efficient business operations and orientation of current comparative advantages for new specialized production processes of diverse and technologically intensive products would provide sustainable growth and development. As for the foreign investors side, the economic stimulus of locating companies shall be fulfilled because the production will be fulfilled by primary resources and raw material which Serbia possesses along with inexpensive and qualified labour.

Serbia is characterized by having more labour as a production factor than capital. The lack of capital can be replenished through economic bilateral cooperation as a mutual benefit. A quality educational system in Serbia creates highly qualified labour with numerous skills which could be made efficient only with new technological production processes. Low unit labour costs present an element of cost competitiveness, whereas a favourable foreign currency rate points to price competitiveness of the Serbian economy.

The concept of the regional integration requires total economic reorganization. It would be feasible only if it is accompanied by profound political changes and sometimes dictations from a centre. But we must not forget that a region is an economic unit, whereas a currency, for example, expresses a national sovereignty.

## **CONCLUDING REMARKS**

The best way to get the country joined the regional integration should involve improving the economy in order to achieve greater benefits than costs. The economic performance should be based on the theoretical concept of OCA in the long run, while the economy should strive to fulfil the convergence criteria.

The process of adjustment to regional integration is easier for developed economies than for small and underdeveloped economies. Therefore, it is necessary to raise the level of development before entering the integration. The reason for this approach is in the “expensive” process of deflationary adjustment. “Expensive” means a drop in GDP, a drop in prices and wages, and rising unemployment.

So, Serbia has to increase:

1. Technological intensity of the production process;
2. Diversification of production and export;
3. Productivity;
4. Trade share.

Only then it can expect growth of economy in the medium term and development in the long term. These conditions will give Serbia a chance to realize greater benefits than costs in regional integration, i.e. the EU.

Serbian economy is not in such a bad position. Serbia is on the way to improve industrial production and raise the level of competitiveness of technology-intensive products. A policy makers need to pay attention to the following fact that well-diversified economy also has a diversified export sector. Achieving these goals it will be easier and cheaper in the process of adjustment to the EU.

Objectively, the EU is doing a big favour to Serbia because it prolongs its membership in the EU for the next 5-10 years – a period in which it is necessary to adjust the structure of production and trade to current production and trade in the global market.

In this paper I was concentrate on the economic aspect of regional EU integration. But, EU is much more than a simple calculation of economic benefits and costs. Additionally, the EU convergence criteria are more concerned with financial indicators rather than real economy. One thing is certain – economic integration in Europe has always concealed political unification. It means that the achievement of convergence depends on certain institutional and structural features, justice and home affairs, social cohesion, human rights, as well as stability and coordination in economic policy, efficient and adequate a system of financial transfers and the degree of development of market mechanisms.

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## ANNEX

Table A1: Revealed Comparative Advantage, Serbian economy (2001-2013)

|  | 2001 |   | 2002 |   | 2003 |   | 2004 |   | 2005 |   | 2006 |   | 2007 |   | 2008 |   | 2009 |   | 2010 |   | 2011 |   | 2012 |   | 2013 |   |   |
|--|------|---|------|---|------|---|------|---|------|---|------|---|------|---|------|---|------|---|------|---|------|---|------|---|------|---|---|
|  | +    | - | +    | - | +    | - | +    | - | +    | - | +    | - | +    | - | +    | - | +    | - | +    | - | +    | - | +    | - | +    | - | + |
| <b>Sector 0<br/>Food and<br/>live animals</b>  | 5    | 2 | 8    | 3 | 6    | 4 | 6    | 6 | 9    | 2 | 9    | 2 | 1    | 0 | 1    | 6 | 2    | 9 | 1    | 9 | 2    | 8 | 2    | 6 | 2    | 7 | 1 |
| <b>Sector 1<br/>Beverages<br/>and tobacco</b>  | 0    | 0 | 0    | 0 | 0    | 1 | 1    | 0 | 1    | 0 | 2    | 0 | 2    | 0 | 2    | 0 | 2    | 0 | 2    | 0 | 2    | 0 | 2    | 0 | 3    | 0 |   |
| <b>Sector 2<br/>Crude<br/>materials,<br/>inedible,<br/>except fuels</b>                                | 1    | 1 | 0    | 4 | 2    | 3 | 2    | 1 | 2    | 1 | 2    | 1 | 1    | 1 | 1    | 1 | 1    | 0 | 2    | 0 | 2    | 1 | 2    | 0 | 3    | 0 |   |
| <b>Sector 3<br/>Mineral<br/>fuels,<br/>lubricants<br/>and related<br/>materials</b>                    | 0    | 1 | 0    | 2 | 0    | 1 | 0    | 1 | 1    | 1 | 1    | 1 | 0    | 2 | 0    | 2 | 1    | 1 | 2    | 1 | 2    | 1 | 0    | 2 | 2    | 1 |   |
| <b>Sector 4<br/>Animal and<br/>vegetable<br/>oils, fats and<br/>waxes</b>                              | 1    | 0 | 1    | 0 | 0    | 0 | 1    | 0 | 1    | 0 | 0    | 0 | 1    | 0 | 1    | 0 | 1    | 0 | 1    | 0 | 1    | 0 | 1    | 0 | 1    | 0 |   |
| <b>Sector 5<br/>Chemicals<br/>and related<br/>products,<br/>n.e.s.</b>                                 | 1    | 2 | 1    | 1 | 2    | 3 | 4    | 2 | 5    | 3 | 4    | 3 | 3    | 2 | 2    | 2 | 0    | 4 | 1    | 2 | 2    | 2 | 1    | 4 | 3    | 3 |   |
| <b>Sector 6<br/>Manufactur<br/>ed goods<br/>classified<br/>chiefly by<br/>material</b>                 | 1    | 0 | 9    | 8 | 7    | 8 | 4    | 5 | 9    | 5 | 6    | 8 | 4    | 8 | 4    | 8 | 5    | 8 | 5    | 8 | 5    | 8 | 5    | 7 | 6    | 8 | 3 |
| <b>Sector 7<br/>Machinery<br/>and<br/>transport<br/>equipment</b>                                      | 4    | 3 | 4    | 2 | 3    | 4 | 1    | 2 | 0    | 4 | 2    | 3 | 2    | 5 | 5    | 4 | 5    | 3 | 4    | 4 | 5    | 2 | 4    | 5 | 5    | 4 |   |
| <b>Sector 8<br/>Miscellaneo<br/>us manufactur<br/>ed articles</b>                                      | 9    | 0 | 6    | 2 | 5    | 3 | 2    | 6 | 7    | 1 | 7    | 1 | 7    | 1 | 8    | 0 | 7    | 1 | 4    | 2 | 6    | 0 | 7    | 0 | 5    | 0 |   |
| <b>Sector 9<br/>Commoditie<br/>s and<br/>transactions<br/>not specified<br/>in the SITC<br/>Rev. 4</b> | 1    | 0 | 1    | 0 | 0    | 1 | 0    | 1 | 1    | 0 | 0    | 0 | 0    | 0 | 0    | 0 | 1    | 0 | 1    | 0 | 1    | 0 | 1    | 0 | 1    | 0 | 1 |

Source: calculations of author, SORS data

Comments: Revealed Comparative Advantage (RCA) is the ratio of foreign trade deficit and the total volume of trade with foreign countries. Positive values of the coefficients represent a trade surplus and reflect comparative advantage. Vice

versa, negative values of the coefficients represent trade deficit, reflecting the loss of comparative advantage.

*Table 2A: Relative advantage in the Serbian economy and intra-industry trade, 2005-2013*

|   | Change in the structure of exports and imports | Marginal Intra Industrial Trade MIIT |           | Trade comparative advantage |                       |                       |
|---|--|--------------------------------------|-----------|-----------------------------|-----------------------|-----------------------|
|   |  | IIT                                  | VIIT      | <i>RX</i><br><i>A</i>       | <i>RM</i><br><i>P</i> | <i>RT</i><br><i>A</i> |
| <b>TOTAL</b>  | ↑  | IIT↑                                 | VIIT<br>↑ |                             |                       |                       |
| <b>Sector 0 Food and live animals</b>   | ↑  | IIT↑                                 | VIIT<br>↓ | +                           | -                     | +                     |
| <b>Sector 1 Beverages and tobacco</b>   | ↑  | IIT↓                                 | VIIT<br>↓ | +                           | +                     | +                     |
| <b>Sector 2 Crude materials,inedible,except fuels</b>                         | ↑  | IIT↑                                 | VIIT<br>↑ | +                           | -                     | -                     |
| <b>Sector 3 Mineral fuels,lubricants and related materials</b>                | ↓  | IIT↑                                 | VIIT<br>↑ | -                           | -                     | -                     |
| <b>Sector 4 Animal and vegetable oils,fats and waxes</b>                      | ↑  | IIT↑                                 | VIIT<br>↑ | +                           | -                     | +                     |
| <b>Sector 5 Chemicals and related products,n.e.s.</b>                         | ↓  | IIT↑                                 | VIIT<br>↑ | -                           | +                     | -                     |
| <b>Sector 6 Manufactured goods classified chiefly by material</b>             | ↓  | IIT↑                                 | VIIT<br>↑ | +                           | +                     | -                     |
| <b>Sector 7 Machinery and transport equipment</b>                             | ↑  | IIT↑                                 | VIIT<br>↓ | -                           | -                     | -                     |
| <b>Sector 8 Miscellaneous manufactured articles</b>                           | ↑  | IIT↑                                 | VIIT<br>↑ | +                           | -                     | -                     |
| <b>Sector 9 Commodities and transactions not specified in the SITC Rev. 4</b> | ↓  | IIT↓                                 | VIIT<br>↓ | +                           | +                     | +                     |

*Source: calculations of author, SORS and UNCTAD data*

Comments: ↑ - increase, ↓ - decrease, IIT – intra-industry trade, VIIT – vertical intra-industry trade, + positive, - negative, RTA – the relative trade advantage index, RXA – the relative export advantage index, RMP – the relative import penetration index

## **PUBLIC SECTOR MANAGEMENT AND ECONOMIC COOPERATION WITH EU IN CONTEMPORARY DEVELOPING COUNTRIES**

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### **ABSTRACT**

*In the article, authors are aiming to present the management of political system of Ukraine and its connection to international political and economic development possibilities on EU market. In the first part institutions of political system are presented. Special attention is paid to composition, structure and role of the Ukrainian public administration management. In the second part of this text short explanation of current economic events is given. At the end author explains importance of strengthening the economic relations between Ukraine and European Union. In this manner, also global marketing and financial aspects are taken into the considerations. It is clearly visible that Ukraine can benefit from further cooperation with the European Union financially, economically as well as from the perspective of the development of the society.*

**Key words:** *Management, Market, Development, Structure Of The Government, European Union, Ukraine*

**JEL Classification:** *F63, X 83*

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## ***INTRODUCTION***

Ukraine is Eastern European country that borders to Russia in the east and north-east, to Belarus in the north-west, to Poland, Slovakia and Hungary in the west, Romania and Moldova in the south-west, and to the Black Sea and Sea of Azov in the south and south-east. The integration of Ukraine to the European Union has been a very controversial topic for a long time, divided mainly between Russian and "Western" perspective on the subject. The Western Countries wanted to complete the integration of Ukraine to the EU and the NATO while Russia sees this as threat to their national interests. At this point, the most important thing is national interests of Ukraine.

Deep and comprehensive free trade area Ukraine-EU (FTA) is an integral part of the Association Agreement and envisages liberalization of trade, in both goods and services, the liberalization of capital movement and, to a certain extent, the movement of labour. A distinctive feature of the EU-Ukraine FTA is a comprehensive program of adaptation of regulations in areas related to trade, to the relevant EU standards. Currently, Ukrainian government is working on establishment of of a free trade area between Ukraine and the EU. Because of these reasons aim of this paper is to present advantages of Ukraine integration to European Union.

## ***PUBLIC ADMINISTRATION AND CENTRAL GOVERNMENT***

Governing power in Ukraine is structured by functions. In this manner, it is divided to legislative, executive and judicial power. According to article 75 of the Constitution of Ukraine, the sole legislative power is the Verkhovna Rada (Parliament) of Ukraine. The Verkhovna Rada of Ukraine has power over other political institutions only via legislative power. However, legislative power can be executed also by citizens who have right to accept legal acts on national referenda. In practice this legislative right was not yet executed due to no legally defined referenda procedure.

Parliament of Ukraine as national, representative, elected, collective, permanent, exclusive legislative body of Ukraine has following characteristics:

1. general government - the competence of the Verkhovna Rada of Ukraine extends to the entire territory of Ukraine;
2. representation - representing the interests of the Ukrainian people and the state both within state borders and at international level;
3. election - Parliament of Ukraine is formed only by the elections;
4. legislation - the sole body of legislative power in Ukraine;
5. collectivity - can be interpreted in two ways:
  - a) As the collective body composed of 450 elected deputies of Ukraine. Despite, deputies are elected by secret ballot during democratic and free elections, candidates still need to fulfil the following criteria; they

should be citizens of Ukraine who are old at least 21 years, they shall have voting right and should live in Ukraine for the last 5 years (Part 2 of Art. 76 of the Constitution of Ukraine). In general, the composition of the parliament should reflect the social structure. Qualitative representation is manifested in social, national, territorial, professional, political, parliamentary and interests characteristics;

- b) decisions are accepted by legally defined majority at the plenary sessions of deputies of Ukraine.
6. unitarily - Parliament of Ukraine has no internal structural division and works as a single body.

The legislative competence of the Parliament of Ukraine determines the critical importance of Parliament in the constitutional system of government. The main legislative competences of the Parliament of Ukraine lays in right and responsibility to accept and amend the Constitution of Ukraine, laws and other legal acts, abolishing them, when needed, and provide the consent to international agreements of Ukraine. The doctrine of constitutional development of our country distinguishes the priority right of the Ukrainian people to accept the Constitution of Ukraine and but it can be done as well by the Verkhovna Rada Ukraine.

Parliament of the Ukraine is sole legislative body and accepts laws and other legal acts of Ukraine with majority 300/450 votes (according to the 91. article of the Constitution of the Ukraine). Legislative power is predominantly defined in following areas: the rights and freedoms of man and citizen, the guarantee of these rights and freedoms; the main duties of a citizens; principles of natural resources, the exclusive (maritime) economic zone and the continental shelf, space development, organization and operation of energy systems, transport and communication; basis of Social Protection, forms and types of pension provision; basis for regulating labour and employment, marriage, family, child welfare, motherhood and fatherhood; upbringing, education, culture and health care; environmental safety; the legal regime of property; legal principles and guarantees of entrepreneurship; competition rules and norms of antimonopoly regulation; the principles of foreign relations, foreign trade and customs; principles of regulation of demographic and migration processes; the principles of the formation and activities of political parties and other public associations, mass media; organization and executive branch agencies, foundations of civil service of the State Statistics and Informatics; the territorial structure of Ukraine; the judicial system, court proceedings, the status of judges, the principles of legal expertise, organization and activities of the Prosecutor's Office of the inquiry and investigation, notaries, enforcement and penal institutions; basis for the organization and activities of the legal profession; the status of the capital of Ukraine; special status of other cities; National Security, the Armed Forces of Ukraine and the maintenance of public order; the legal regime of the state border; the legal regime of martial law and a state of ecological emergency zones; organization and the conduct of elections and referendums; organization and procedure of the Verkhovna Rada of Ukraine, the status of people's deputies of Ukraine; the principles of civil liability; acts that are criminal, administrative or

disciplinary offences, and the responsibility for them; State Budget of Ukraine and the budgetary system of Ukraine; taxation, taxes and charges; principles for the creation and operation of financial, monetary, investment and credit markets; status of the national currency, and status of foreign exchange in Ukraine; procedure for the establishment and payment of state domestic and foreign debt; procedure for the issuance and circulation of state securities, their types and forms; procedures for the use and protection of state symbols; the government awards; military ranks, diplomatic ranks and other special titles, etc.

As it is visible, Verkhovna Rada of Ukraine is authorized to make laws within the widest possible range of policy issues. However, they are not allowed to accept any law that would restrict the existing rights and freedoms of humans and citizens of Ukraine, as well as they are not allowed to adopt the law violating the territorial integrity or sovereignty of the country. In addition, the Parliament of Ukraine has significant fiscal competences as well as rights and responsibilities to ensure the positive performance of the judicial system, political system of the country. Ukrainian parliament is responsible for appointment of judges as for guaranteeing their professional rights and responsibilities. Within this scope, it is specific stipulation that a judge may not be detained or arrested without the consent of the Verkhovna Rada of Ukraine (Part 3. 126 Ukraine's Constitution).

In general, the competence of the Parliament of Ukraine in the field of social relations is quite diverse, indicating the crucial role of parliament as a coordinating, controlling, constituent and legislative authority in the system of state power (Shpatala, Zadorozhnyj, 2012).

### ***PEOPLE'S SERVICES REVIEW***

MP of Ukraine is elected according to the Constitution and laws of Ukraine. Ukraine authorized representative of the Parliament of Ukraine, which over the life of a deputy's mandate has legally defined powers. The legal status of deputies of Ukraine is guaranteed by the Constitution and laws of Ukraine. The legal status exists for the entire term of the deputy's mandate.

In its activities, the Deputy of Ukraine must comply with generally accepted standards of morality, to keep their dignity, respect, honour and dignity of other citizens of Ukraine, refrain from actions, statements and actions that compromise him, the voters, the Parliament of Ukraine, the State. MP of Ukraine shall not use the mandate for profitable purposes.

Citizen who has been convicted of committing an intentional crime, if the record has been cancelled or withdrawn in accordance with the law (part of Art. 76 of the Constitution of Ukraine) cannot be elected to as a deputy of Ukrainian parliament.

The principles of the legal status of a National Deputy of Ukraine are the main principles and initial ideas that reflect the most essential characteristic features of the legal status of a National Deputy of Ukraine in the society and the state.

The basic principles of the legal status of people's deputy of Ukraine:

- Equality of Deputies, which means their equal opportunity to elect and be elected to parliament (commissions, committees, etc.). By holding of the office in the Verkhovna Rada of Ukraine, they exercise their right to a parliamentary inquiry and speak at the plenary sessions of Parliament, they have the right of legislative initiative, exercise the privileges stipulated by the current legislation, etc.;
- Due to incompatibility of the deputy's mandate with other activities People's Deputies of Ukraine, they cannot have another representative mandate or be in the public service (part 2 of Art. 78 of the Constitution of Ukraine). In case of default claims of incompatibility deputy's mandate with other activities, powers of deputy of Ukraine are terminated by the court (§ 4. 8 of the Constitution in the country);
- People's Deputy of Ukraine perform their powers professionally (Part 1 of Art. 78 of the Constitution of Ukraine). This means that the deputies of Ukraine for the implementation of parliamentary authority receive a salary in the amount set by the Verkhovna Rada of Ukraine.
- Parliamentary indemnity - a dual interpretation in the science of law:
  1. material compensation for the performance of people's deputy of Ukraine of his parliamentary office;
  2. People's Deputies of Ukraine is not legally liable for the results of the voting or statements made in Parliament and its bodies, except for insult or defamation (§ 2 of Art. 80 of the Constitution of Ukraine).

Today virtually all democratic countries recognized parliamentary indemnity. Even during the days of the feudal caste members of representative institutions in Europe have enjoyed protection for the actions of royal power. Institute of indemnity is inherent not only to the Roman-Germanic countries, but the Anglo-Saxon legal practice. The term "indemnity" in English-speaking countries is "the privilege of freedom of speech." The amount of indemnity varies in different states, for example, in Germany's deputies on a general basis are legally responsible for libel while in Lithuania and Belarus - for defamation and insult. The same constitutional provision, as noted above, is also active in Ukraine;

- Free parliamentary seat - voters can not recall a National Deputy of Ukraine, as it represents the interests of the whole nation, not just those voters who gave him their vote in the elections. However, the introduction of a proportional electoral system in Ukraine led to a deepening of political structuring of the Verkhovna Rada of Ukraine, the logical consequence this was the strengthening of party discipline;
- Parliamentary immunity (immunity), the legal consequence of which is the inability to detention, arrest or criminal prosecution National Deputy of Ukraine without the prior consent of the Verkhovna Rada of Ukraine (part of Art. 80 of the Constitution of Ukraine). People's Deputies of Ukraine under Part I of Art. 27 Law of Ukraine "On the Status of People's Deputy of Ukraine" dated on November 17<sup>th</sup>, 1992 guaranteed parliamentary immunity for the entire duration of exercise of parliamentary authority.

Rights and freedoms of the People's Deputy of Ukraine (interception of private telephone conversations, correspondence, inspection of the vehicle, premises or office, his detention) are permitted only with the consent of the Verkhovna Rada of Ukraine on condition of inability to obtain relevant information otherwise.

In history there were different extends of immunity. For example, in Finland the arrest of the deputy and prevent criminal case against him is possible without the consent of the Parliament, provided the parliamentary commission if an offence entails under the criminal law of imprisonment for not less than six months. In Macedonia and Slovenia this term extended to five years. It seems that this practice would be useful for Ukraine.

Thus, the status of deputy Ukraine reflects the legal status of the Ukrainian parliament, the degree of democratic society and state direct and representative democracy in the country. Status of People's Deputy of Ukraine is a multi-faceted as the functions and powers as well as the content and activities made by the deputies of Ukraine. This is because the deputies of Ukraine are elected representatives of the people of Ukraine, designed to perform the functions of parliament, and the Ukrainian state in accordance with the Constitution and laws of Ukraine.

Powers of the People's Deputy of Ukraine are set forth by the Constitution and laws of Ukraine, its rights and obligations to carry out its functions.

1. to take part in meetings of the Verkhovna Rada of Ukraine;
2. to take part in the parliamentary factions, committees, commissions formed by the Verkhovna Rada of Ukraine;
3. to fulfil the duties of the Verkhovna Rada of Ukraine and its agencies;
4. has the right of legislative initiative in the Verkhovna Rada of Ukraine, stipulated in Art. 93 of the Constitution of Ukraine, which is one of the most important of his rights;
5. is involved in work on bills and other acts of the Verkhovna Rada of Ukraine as well as in the parliamentary hearings;
6. may vote on all matters considered at meetings of the Verkhovna Rada of Ukraine and its organs, to which he was elected;
7. has the right to propose issues for consideration by the Verkhovna Rada of Ukraine or its agencies;
8. is entitled to request the deputy and the deputy's appeal to the President of Ukraine, the Verkhovna Rada of Ukraine, the Cabinet of Ministers of Ukraine and other business relationships and so on.

Powers of the People's Deputy of Ukraine in relations with voters:

1. always keep in touch with voters in the manner prescribed by law;
2. meet with voters, groups of enterprises, institutions and organizations, civic associations, in which he must immediately contribute to their heads;
3. to consider the appeal of voters, as well as enterprises, institutions, organizations, public authorities, local governments, NGOs, in accordance with the law and to take appropriate measures.

To work with the electorate MP Ukraine monthly on set days defined by law.

Implementation of their proposals and legal requirements to inform voters about their parliamentary activities during personal meetings with them and through the media.

Powers of the People's Deputy of Ukraine in relations with public authorities, local authorities, enterprises, institutions and organizations, associations of citizens of Ukraine and foreign countries are:

1. Protect the independence, sovereignty and interests of Ukraine and its citizens;
2. the right to accept foreign representatives on behalf of Parliament of the Ukraine;
3. participation in an advisory capacity in the sessions in villages, towns, cities, borough (in cities with district division), districts and regional councils and meetings of their bodies;
4. obtain information on matters related to his parliamentary powers of state and self-governing bodies, their officials and others.

The term of office of People's Deputy of Ukraine, as well as the Supreme Council of Ukraine shall be five years. Powers of the People's Deputies of Ukraine shall terminate simultaneously with the termination of the powers of parliament, with the exception of the grounds for early termination of powers of deputies of Ukraine (Article 81 of the Constitution of Ukraine) (LAW OF UKRAINE On the status of deputies of Ukraine, 2014) (Shpatala, Zadorozhnij, 2012).

## ***EXECUTIVE ORGANIZATION RESEARCH***

Executive branch of the government is composed of the government and the president of the republic. The President of Ukraine is head of the state and formal head of executive branch of the government. It plays an important role coordinating and supervising institutions of public authorities. He is directly involved in the management of society and the state: forms the Cabinet of Ministers of Ukraine shall appoint judges of the Constitutional Court of Ukraine, is the Supreme Commander of the Armed Forces of Ukraine, signs the legislation, represents the state within its borders and at international level. Activities of the President of Ukraine as the Head of State are supported by advisory, consultant or subsidiary bodies, such as the Presidential Administration of Ukraine, the National Security and Defense Council of Ukraine and others (Shpatala, Zadorozhnij, 2012).

Executive branch has three structural units on organizational and legal level:

1. a high level - the Cabinet of Ministers (in the functional interaction with the President);
2. Central level - ministries, state committees and other agencies under the Cabinet of Ministers;
3. Local - regional level, which is composed of the executive power of general competences - the Council of Ministers of the Autonomous Republic of Crimea, regional, district. Kyiv and Sevastopol city state

administrations; those of special sectoral and functional competencies that are directly subordinated to the central authorities and are in the so-called dual reporting (ie both the relevant central and local executive bodies). (Public administration in Ukraine, 2014)

Government is central part of executive power. It exercises executive power, both directly and through central and local executive bodies, by directing, coordinating and controlling the activities of these bodies. Government or the Cabinet of Ministers consists of the Prime Minister, First Deputy Prime Minister, three Deputy Prime Ministers and Ministers of Ukraine. Newly adopted law of Ukraine "On the Cabinet of Ministers of Ukraine", which has not entered into force yet, stipulates that the Cabinet has to have at least ministers for Foreign Affairs, Justice, Defence, Interior, Finance. Other ministries may be created or abolished by the President of Ukraine.

The Prime Minister is the head of the Cabinet, and directs its work, takes responsibility for the implementation of programs of the Government. The Prime Minister determines and allocates responsibilities between the first Deputy Prime Minister, Deputy Prime Ministers and Ministers, coordinates their activities, uses measures of disciplinary liability (other than dismissal) of the members of the Cabinet, heads of other central bodies of executive power and their deputies. In some cases, within the limits set by the Constitution, acting as the President of Ukraine in case of early termination of powers of the later.

First Deputy Prime Minister and vice-prime ministers as Deputy Prime Minister are responsible for the strategy and the program of the Government. Within their assigned areas and fields they direct, coordinate and supervise the work of ministries and other central authorities to perform the tasks of government, as well as they examine and approve the draft decisions of the Cabinet, resolve possible differences among the members of the Cabinet. They replace the Prime Minister in his absence, within the limits specified by the Prime Minister.

The Ministers of Ukraine are heads of ministries. They are responsible for the formation and implementation of public policy in the areas assigned to them and are politically responsible to the President as well as to the Supreme Council for their activities.

Today (as of 03/24/2015) in Ukraine there are 17 ministries, including:

1. Ministry of Agrarian Policy and Food of Ukraine;
2. The Ministry of Internal Affairs of Ukraine;
3. Ministry of Information Policy of Ukraine;
4. The Ministry of Ecology and Natural Resources of Ukraine;
5. Ministry of Economic Development and Trade of Ukraine;
6. Ministry of Energy and Coal Industry of Ukraine;
7. Ministry of Foreign Affairs of Ukraine;
8. Ministry of Infrastructure of Ukraine;
9. Ministry of Culture of Ukraine;
10. Ministry of Youth and Sports of Ukraine;
11. Ministry of Defence of Ukraine;

12. Ministry of Education and Science of Ukraine;
13. Ministry of Health of Ukraine;
14. Ministry of Regional Development, Construction and Housing and Communal Services of Ukraine;
15. Ministry of Social Policy of Ukraine;
16. Ministry of Finance of Ukraine;
17. Ministry of Justice of Ukraine. (Government portal – Kabinet Minister of Ukraine, 2014)

From what was described above it is clear that the composition of executive power in Ukraine is rather complicated and contradictory, due to dual subordination of individual units. This is especially visible in today's challenging environment and in the process of implementation of the association agreement with the European Union, which gained country for a lot of benefits in the important economical spheres.

### ***THE ASSOCIATION AGREEMENT WITH THE EU***

On March 21st, 2014, the Representatives (Heads of the states) of the European Union member states and Prime Minister of Ukraine, Yatsenyuk signed political provisions of the Association Agreement between the EU and Ukraine.

The negotiations on a new enhanced agreement between Ukraine and the EU to replace the Agreement on Partnership and Cooperation were launched in March 2007 (in 2008 the parties agreed on the name for future agreements - Association Agreement). On November 11th, 2011, the final, twenty-first, round of negotiations on the Association Agreement, during which all the provisions of the Agreement were agreed, took place in Brussels. The main statistics of economy of Ukraine can be seen on Table 1.

*Table 1: General information about Ukraine (average by 2014<sup>th</sup>)\* according state statistic committee of Ukraine*

|   |   |
|---|---|
| Territory of the country  | 603,628 km <sup>2</sup> (233,062 sq mi) |
| Population  | 43041189                                |
| Capital investments   | 42624,7                                 |
| Exports of goods, mln. Euro   | 14000.98                                |
| Import of goods, mln. Euro  | 13745.2                                 |
| The average salary per employee, grn (Euro)                                 | 3302 (206.25)                           |
| Totally enterprises in the country  | 393327                                  |
| The number of registered unemployed, thousand persons                       | 504.9                                   |
| Need of workers for employers to fill vacancies (vacancy rate) in thousands | 52.3                                    |
| Migration of population:<br>- Arrivals                                      | 149403                                  |

|  |         |
|--|---------|
| - departures   | 139187  |
| Retail turnover of enterprises, mln. Grn                       | 1543.85 |
| Gross domestic product (2013), at current prices; million grn. | 9182.63 |

During the fifteenth EU-Ukraine Summit (December 19th, 2011, Kyiv) Ukraine and EU leaders officially announced the conclusion of negotiations on the Association Agreement. On, March 30th, 2012, heads of the negotiating delegations initialed the Agreement.

The Association Agreement is designed to provide a new, in-depth format of relations between Ukraine and the EU. It is a unique two-sided document that will come out far beyond such agreements between EU and the countries of Central and Eastern Europe. The agreement not only lay new legal framework for future relations between Ukraine and the EU, but also serve as a strategic guide for systemic social and economic reforms in Ukraine, a large-scale adaptation of Ukraine's legislation to EU standards and rules.

With the ratification of the Agreement between Ukraine and the EU, relations between both entities will develop to a new level - from partnership and cooperation to political association and economic integration. An important element of the agreement is the provision of comprehensive free trade area. Ukraine considers Association Agreement as an important step towards alignment in the future to the next stage - preparation for EU accession. The Association Agreement has over a thousand pages, and its structure consists of a preamble, seven parts, 43 applications and 3 protocols.

As part of the "Preamble, common objectives and principles" existing framework of an Association Agreement between Ukraine and the EU is defined. In particular the recognition of the European aspirations and the European acceptance of Ukraine as a European country that shares with the EU common history, values and defined objectives of the Agreement, including gradual rapprochement between Ukraine and the EU on the basis of common values, deepening economic and trade relations, including through the FTA, strengthening cooperation on justice, freedom and security. It also stressed basic principles, especially human rights and fundamental freedoms, respect for the rule of law, respect for the sovereignty and territorial integrity, inviolability of borders and independence as the heart of the agreement. It emphasizes that relations between Ukraine and the EU are based on the principles of free market economy, rule of law, good governance, etc.

Part on the "Political dialogue and reform, political association, cooperation and convergence in the field of foreign and security policy" contains provisions, implementation of which should contribute to the development and strengthening of political dialogue in various fields, including gradual convergence of Ukraine with the EU's foreign and security policy.

In the defined objectives of the political dialogue, the key element is the introduction of political association between Ukraine and the EU. Among other

purposes are also spread of international stability and security, strengthening the respect for democratic principles, the rule of law and good governance, human rights and fundamental freedoms, extending the principles of independence, sovereignty, territorial integrity and inviolability of borders, cooperation in security and defence policy. This section also defined levels and formats of political dialogue, in particular it envisages summits, ministerial and other meetings.

Among the key areas of cooperation is cooperation for promotion of regional stability, peace and international justice; in particular through the implementation of the Rome Statute of the International Criminal Court; providing gradual convergence in the field of foreign and security policy, including common security and defence policy, conflict prevention, non-proliferation, disarmament and arms control, counter-terrorism and so on. In the part on "Justice, freedom and security" an important aim of cooperation is the rule of law and strengthening of the institutions, particularly in the field of law enforcement and strengthening the judicial system; improving its efficiency, guaranteeing its independence and impartiality. Within this field of cooperation, an adequate level of protection of personal data in accordance with the best European and international standards is requested. In order to manage migration flows, Agreement provides the introduction of a comprehensive dialogue on key issues of migration, including illegal migration, human trafficking, etc. Separated articles are devoted to creation of favourable conditions for legal labour migrations. Close attention is paid to mobility of citizens and thus to deepening of the visa dialogue, including the introduction of a visa-free regime after the enactment of relevant criteria stipulated in the Action Plan to liberalize the EU visa regime for Ukraine. Provisions of the section also assume stronger cooperation on fighting money laundering and terrorist financing, drug trafficking, organized crime, terrorism as well as on the development of cooperation in the provision of legal assistance in civil and criminal cases.

### ***MAIN ELEMENTS OF THE ASSOCIATION AGREEMENT AND IMPACT ON ECONOMY***

With aim to achieve this a series of regulations aimed at creating conditions for the functioning of a free trade area between the EU and Ukraine have been adopted. Nowadays a reform of the system of standardization and metrology continues. In 2014 2313 national regulatory documents were adopted, and 1998 of them were harmonized with international and European ones. The total number of national standards adopted in Ukraine, which are harmonized with international and European standards, amounts to 8849. Depository of national standards includes 29.6 thousand documents. Starting from 2006, 3934 inter-government standards (GOSTs) were annulled, 122 of them became invalid in 2014. The comprehensive electronic database of regulation documents contains 10,800 texts of regulation documents and bibliographic information to them; 343 regulation documents were entered into this database in 2014. It is assumed that the

temporary application of the provisions of Chapter IV of the Agreement "Trade and Traderelated Matters" will start from January 1, 2016. In order to help in developing of Ukrainian economy EU introduced so-called "autonomous trade preferences" in April 2014. They are valid till December 2015. This means that EU decreased its tariff protection from Ukrainian goods. Trade preferences brought a very positive result on Ukrainian economy. During 11-month period there is increase in exports by 12% (Секретаріату Кабінету Міністрів України, 2016).

Part of the Agreement on "Economic and Sectoral Cooperation" contains provisions on conditions, modalities and timing of harmonization of legislation of Ukraine with the EU legislation, Ukraine's commitment to reform the institutional capacity of relevant institutions and principles of cooperation between Ukraine and the EU Member States in a number of areas including public sector policy. 28 chapters in this section of the Agreement list the appropriate measures in individual chapters of the EU policies.

Implementation of this section of the Agreement will allow, first, to provide a more in-depth implementation of the Agreement on free trade as contribution to the approximation of legislation and the regulatory environment in Ukraine, and therefore eliminating non-tax trade barriers. Secondly, it will facilitate the integration of Ukraine to the EU single market and the single regulatory space in most sectors of the economy and social life of Ukraine.

Part on "financial cooperation" mechanism outlines ways of obtaining financial aid for the Ukraine by the EU, including facilitation of the implementation of the Association Agreement priority areas and their provisions, as well as monitoring and evaluation of use of the financial aid. In addition, the provisions of this part include also measures on deepening of the EU-Ukraine cooperation on prevention and combat fraud, corruption and illegal activities, including through the progressive harmonization of Ukrainian legislation in this area with the EU legislation, the exchange of the information, etc.

According to the "institutional, general and final provisions", it is expected to introduce new forms and levels of cooperation between Ukraine and the EU after the Association Agreement enters into the force. This includes the establishment of the Parliamentary Committee on Ukraine - EU association, involvement of civil society by establishing the institutional platform for civil society. In the context of ensuring the proper implementation of the Agreement mechanisms for monitoring and resolving disputes, that may arise during the implementation of the Agreement, will be implemented. Due to the unlimited duration of the agreement, it envisages the possibility of its comprehensive review, including with regard to its goals within five years from its entry into force, and at any time by mutual consent.

The Association Agreement is a ground-breaking document and the first agreement based on political association between the EU and any of the Eastern Partnership countries. The agreement is also unprecedented in terms of its size (number of areas that it covers) and depth (detail commitments and time frames for their implementation). Bulk of provisions are devoted to key reforms, economic recovery and growth, as well as to governance and sectoral cooperation in energy,

transport, environment, industry, social development and social protection, equal rights, consumer protection, education, youth and culture. Agreement also focuses on the values and principles: democracy and the rule of law, respect of human rights and fundamental freedoms, good governance, market economy and sustainable development. It also includes provisions on deep and comprehensive free trade area. It goes far beyond the classic free trade agreement, because it involves mutual opening of markets and stimulates competitiveness and other steps necessary to comply with EU standards and trade in the EU markets. In addition, the Agreement reflects issues of justice, freedom and security, as well as conditions for mobility. Important element of the agreement is the provision of a free trade area. Ukraine considers the Agreement as an important step towards preparation for full membership in the EU (Ukraine agreement about Association with EU, 2014).

In order to achieve this, Ukraine started a range of systematic reforms and adopt the law on minorities. Generally, expected reforms can be grouped in two groups:

**1. political reforms:**

- Increase the level of democracy to allow people to participate in political decision-making processes at all levels - from local to national (Ukraine should successfully fight corruption and ensure complete change of all authorities);
- assure rule of law (Ukraine has to adopt the Law on the Prosecutor under judicial reform and the Code of parliamentary local and presidential elections);
- respect of human rights and freedoms (Ukraine has to join all international treaties and it should respect these treaties);
- protection of minority rights;

**2. economic reforms:**

- Reduce state budget deficit to 3% of GDP (in 2014 Ukrainian budget deficit was at the level of 3.6% GDP);
- Keep the level of public debt under 60% of GDP (in 2014 Ukrainian national debt was at the level of 65% GDP);
- Support of the national currency exchange rate in a given range within two years (this provision is contrary to the requirements of the IMF which recommends floating exchange rate);
- Inflation should not exceed by more than 1.5% of inflation in three EU member states with the most stable prices (in 2013 the EU average inflation was 3% and in Ukraine 5%. In 2014 average inflation was 24,9%. Prediction for 2015 is 26%);
- Long-term interest rates on government bonds should not exceed more than 2% of the average value of the corresponding rates of EU countries with low inflation (the average rate in the EU is up to 3%. At the end of 2013 government bond yields in Ukraine interest rate was 8.9%) (Секретаріату Кабінету Міністрів України, 2016).

To stabilize the financial and economic situation in Ukraine, as well as to support the transition process, promote political and economic reforms and development, European Commission assures within this Agreement at least 11 billion Euros from the EU budget and other European financial institutions. These funds will be provided as additional support, next to the funds from the IMF and the World Bank.

Now the process of reformation had only started. In order to develop and improve the legislation in the field of fighting corruption on October 14, 2014 the Verkhovna Rada approved the following acts:

- The Law of Ukraine "On the National Anti-Corruption Bureau", which defined the legal basis of the organization and activities of the National Anti-Corruption Bureau of Ukraine. To ensure functioning of the National Anti-Corruption Bureau of Ukraine the State Budget of Ukraine for 2015 will provide expenditures of 249 million UAH.
- The Law of Ukraine "On Principles of the State Anti-Corruption Policy in Ukraine (the Anti-Corruption Strategy) for 2014 – 2017", which provides a set of priority measures aimed at preventing corruption in Ukraine and establishing preconditions for further anti-corruption reforms;
- The Law of Ukraine on the Prevention of Corruption " (will enter into force on April 26, 2015), which stipulates the establishment of a separate independent preventive anti-corruption body – the National Agency for the Prevention of Corruption (a central government executive authority with a special status). To ensure the functioning of the National Agency for the Prevention of Corruption, the State Budget of Ukraine for 2015 provides expenditures in the amount of 112,5 million UAH (Секретаріату Кабінету Міністрів України, 2016).

All these measures should be considered as a contribution to the efforts of the European Commission and the international community to reduce the difficulty of the economic situation in Ukraine and to support its economic and political reforms. The actions of the EU Member States, which will complement and reinforce the role of the Commission in this process is extremely important. The participation of partner countries and international financial institutions, particularly the IMF, the European Investment Bank, European Bank for Reconstruction and Development and the World Bank is also very important to improve the efficiency of the support, increasing the visibility of joint actions and improve their results. All components and instruments should be assembled together to provide an efficient and cohesive response of the European Union.

Key elements of the package of assistance defined by the Agreement are:

- In the following years 3 billion Euro should be allocated from the EU budget; provision of 1.6 billion Euro macro-financial assistance in the form of loans and aid package in the form of grants (1.4 billion euros);
- Allocation of up to 8 billion Euros from the European Investment Bank and the European Bank for Reconstruction and Development;
- Involvement into the scheme potentially allocating 3-5 billion Euros from Neighbourhood Investment Facility (Neighbourhood Investment Facility);

- Creation of donor coordination platform;
- Organization Investment Forum / task force at a high level;
- Modernization of the Ukrainian gas system and work on the development of reverse flows, including through Slovakia;
- Acceleration of the implementation of the Action Plan for liberalisation of visa system and offer of a Mobility Partnership;
- Providing technical assistance in different areas - from constitutional and judicial reforms to preparation for elections.

Economic support is provided in the form of macro-financial assistance and support for development. The total available amount of macro-financial assistance fund is 6 billion Euros. In the short term, the European Commission allocated 610 million euros in the form of loans under the scheme of macro-financial assistance. The first installment of the first EU macro financial assistance in the amount of 100 million EUR was received in May 2014, the second and third installments in the amount of 260 million EUR were received in November 2014 and the last installment in the amount of 250 million EUR is expected in March 2015. The second additional macro financial assistance was received in December 2014 in amount 1 billion EUR. This significant amount is used to help Ukraine to address the most pressing problems - in particular, to stabilize the financial situation, to improve its balance of payments and budgetary needs. This also affects on export, so we can see that some EU countries are very good export partners.

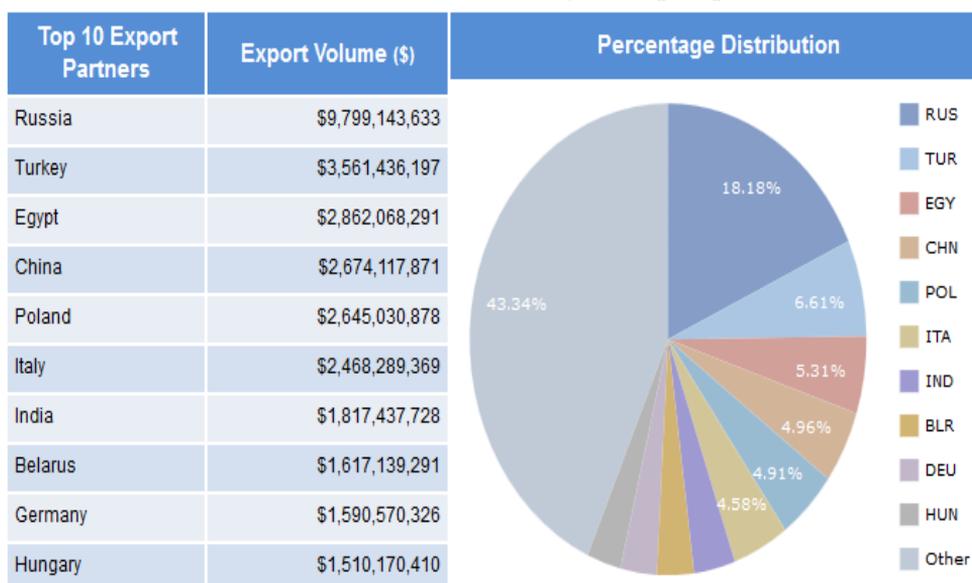


Figure 1: Ukraine export partners

Source: <http://globaledge.msu.edu/countries/ukraine/tradestats>

Currently, consultations continue regarding attraction of the third EU macro financial assistance (indicative amount is up to 1.8 billion EUR). In October 2014 the EU and Ukraine signed an Agreement on financing the Program to support

civil society in Ukraine. The Programme budget is 10.8 million EUR. The Assistance will be provided to strengthen involvement of civil society into decision-making processes and to improve interaction between government authorities and civil society in Ukraine. It has been planned to transfer funds in 2015.

In November 2014 Ukraine and the EU signed an Agreement on financing sectoral budget support in the field of regional development. The Program budget is 55 million EUR. The funds will go towards supporting the goals defined by the State Strategy on Regional Development for the period up to 2020. In December 2014 consultations with the EC started on programming of the EU assistance to Ukraine for the period of 2015 – 2017.

EU assistance is planned to support political and economic integration of Ukraine to the EU on the following three priorities:

- Reform of the system of justice and public administration;
- Development of trade and the private sector;
- Energy (energy efficiency). It has been agreed to initiate the EU assistance program to support small and medium-sized business in Ukraine in 2015 (indicative program budget is 85 million EUR) (Урядовий портал, 2016).

Over the next seven years, development aid package to Ukraine in the form of grants can reach 4 billion Euros. For the period 2015-2020, annual bilateral aid package size of 130 million Euros are available as part of the European Neighbourhood policy. Under the principle of "more for more" additional 40-50 million Euros can be released annually if progress in deepening democracy and respect for human rights is proven. In addition, Ukraine can count on sizeable funding programs Neighbourhood Investment Facility.

The Commission is currently conducting a number of funding programs for sectoral budget support and technical assistance. The new government of their implementation will contribute to key areas: economic development, public finance management and justice. The budget for this is about 400 million Euros.

In addition, to encourage cost-effective investment projects in Ukraine, Neighbourhood Investment Facility will be initiated. Experience in implementing this tool on the eastern vector Neighbourhood Policy over the last programming period showed that there is possibility for the Ukraine to gain additional 200-250 million euros in the form of grants. In the case of Ukraine, this means possibility to attract additional 3.5 billion Euros of loans.

Currently, within the Neighbourhood Investment Facility, Commission is working on the possibility of creating a special window to support the countries concerned in implementing the Association Agreement, including a Deep and Comprehensive Free Trade Area. This allows our partners to have access to assured and targeted assistance package to support investment in the sector, which is crucial for the modernization and adoption of EU standards (particularly in the areas of environmental protection and energy). Ukraine also intends to use this tool for further development of investment opportunities in the private sector.

A tool that contributes to stability and peace (former Stability Instrument) can be used to implement immediate action - in particular, to reform law enforcement and to support electoral reform. When the necessary actions will be determined, there is possibility to immediately mobilize up to 20 billion euros; 15 million Euros will be taken from the budget of the Common Foreign and Security Policy to support actions related to the reform of the security sector.

Finally, Ukraine is an important country for the EU as part of the Nuclear Safety Council. Currently, projects in this area - with a budget of 50 million Euros, implemented within the framework of the Collaborative Instrument for Nuclear Safety (In particular, the nuclear waste management sector). Also there is the implementation of social projects in the affected areas around the Chernobyl exclusion zone. This area may also be involved in the aid package in amount 36, 5 million Euros. The period of submitting applications within the new financial period is still ongoing, which will further strengthen EU action in this area.

The Commission confirms its willingness to create a Trust Fund as soon as the EU-member states will support this initiative. This will create an opportunity for member States to substantial financial contributions, strengthen the visibility of the EU and its Member States and promote the effective, rapid and coordinated allocation of funds.

The European Investment Bank is focused on the support of policies and strategies that already has a portfolio of projects in Ukraine in total amount of 1.5 billion Euros within last three years. EIB can significantly increase this amount without bringing money from other regions. It is possible, however, if they are given adequate warranty and if political conditions will contribute to this. For the period 2014-2016, the EIB can provide funding for long-term investments in the amount of 3 billion Euros to support the local private sector and economic and social infrastructure. After a review of the 2014-2016 mandate of the EIB external borrowing, which is scheduled for late 2016, the bank can continue to increase its activities in 2020. This can be done by activating the optional pre-specified order in amount of 3 billion Euros, subject to the achievement of the budgetary authority agreement on additional funding.

In its activities, the EIB works closely with other international financial institutions operating in the region - thus making a significant contribution to obtain the effect of borrowing. The Commission also will consider separation and accumulation of certain additional guarantees for EIB funds which were available in investment instruments of the Euro-Mediterranean Partnership.

The European Bank for Reconstruction and Development (EBRD) is an international financial institution in which the EU and its Member States have a majority share. As part of the agreed program of financial assistance and supporting effective structural and macroeconomic reforms, EBRD may provide 5 billion Euro for the same period. However, if economic conditions permit, this amount can be even increased.

The Commission maintains close contact with the IMF and the World Bank and their activities, both in Ukraine and headquarters. The Commission is

exploring opportunities to increase coordination of international donors by creating special mechanisms of donors coordination with the international community and international financial institutions. This is to ensure efficient performance of duties and to maximize the impact of EU economic aid and development assistance, as well as to enhance its visibility.

This can be done through the assessment of the needs and reform program prepared by the Ukrainian authorities. This enables possibility for improvement of the economic situation in Ukraine, by supporting the economic and political changes.

Donor coordination mechanism can be implemented in the form of the international platform, which will be located in Kiev. This platform could meet regularly for solving the economic situation in the country. The political leadership will be coordinating meeting international platform at the highest level. The Commission is ready to hold such meetings in Brussels. Mechanism would be open to member states of the EU, IMF, World Bank, EBRD, EIB and other stakeholders.

*Table 2: Support for Ukraine - roughly the amount of aid\**

| Source money   | Approximate / period<br>(in millions of euros) |
|--|--|
| I. The European Commission (2014-2020)                         |  |
| I.1 General support for development (grants)                   | 1 565  |
| Bilateral contract, including:                                 |  |
| - Annual Action Programme (AAP) 2014                           | 140-200  |
| - Average amount of RAP in 2015-2020 years                     | 780  |
| - Additional program ("more for more") for the years 2015-2020 | 240-300  |
| Neighbourhood Investment instrument                            | 200-250  |
| Instrument for support of stability and peace                  | 20   |
| Common Foreign and Security Policy                             | 15   |
| I.2 Macro-financial support (loans)                            | 1 610  |
| I.3 European financial institutions                            |  |
| The European Investment Bank                                   | Up to 3 000                                    |
| European Bank for Reconstruction and Development               | 5 000  |
| Total amount   | 11 175   |

*Source: \*(ЄС готовий виділити Україні понад 11 мільярдів євро  
<http://euukrainecoop.net/2014/03/05/11bln/>)*

In addition, the European Commission and the EU High Representative, in collaboration with the Council of Europe and the Venice Commission, will continue to provide support to constitutional reforms. At the same time support of the reform of procurators and law enforcement institutions also continues via dialogue between the EU and Ukraine on the judicial reform. Additionally, support

to electoral reforms and technical assistance, including monitoring in the context of Election Observation Mission of the OSCE / ODIHR will be provided.

### ***LOCAL GOVERNANCE AND MANAGEMENT IMPLICATIONS***

Executive power is carried out on local - regional and district level as well as within competences of Kyiv and Sevastopol city - state administrations. Since June 1997 when the Law of Ukraine "On Local State Administrations" was adopted, the organization and functioning of local authorities in the cities of Kyiv and Sevastopol and in the Crimea have certain characteristics that should be reflected in a separate law.

According to art. 118 of the Constitution of Ukraine composition of local administrations is formed by the heads of local state administrations which, is appointed and dismissed by the President on the advice of the Cabinet.

Heads of local state administrations are, in the exercise of their authority, responsible to the President and the Cabinet of Ministers. They are accountable to and controlled by the executive power of a higher level, i.e., district administration - regional state administration, regional administration - the Cabinet. They are also accountable to and controlled by the respective local authorities (councils) of the powers delegated by these councils (parts 3-7 c. 118 of the Constitution).

Local administrations are first level executive powers within their sole leaders. The head of the local administration appoints its members, including his deputy (not more than three deputies), heads of departments, divisions and other organisational units.

Areas of responsibility of local administrations are determined by referring to their jurisdiction within the solution and by forms established by the Constitution and laws of Ukraine and refers to the local issues of life:

- Provision of law, protection of rights, freedoms and legitimate interests of citizens;
- Socio-economic development of the respective areas;
- Budget, Finance and Accounting;
- Property management, privatization and entrepreneurship;
- Industry, agriculture, construction, transport and communication;
- Science, education, culture, health, physical education and sports, family, women, youth and adolescents;
- Land use, natural resources, environmental protection;
- Foreign economic activity;
- Defence mobilization work and training;
- Social protection, labour and wages, as well as in other sectors (sectors) imposed by law.

Local administrations have jurisdiction over the area, which effectively depends on local governments, particularly in matters of economic, social and cultural development of the areas, strengthening material and financial base of

local government, the implementation of the powers vested in them by the law, to consider and take into account cooperation possibilities.

However, the local administrations have no right to interfere in the exercise of local government powers of their own. For the implementation of programs by local state administrations and local self-government may enter into agreements to establish joint ventures and organizations.

Critical attention of local state administrations should be given to the relations with the citizens who live in the territory. In particular, to support citizens in the exercise of their constitutional rights, freedoms as well as to demand fulfilment of their constitutional duties. Citizens address local administrations due to specific issues within the jurisdiction of the local administrations. Civil servants are obliged to consider the petitions of citizens and they should provide a reasonable answer or take appropriate action within a month (Public administration in Ukraine, 2014).

In Ukraine, under the influence of winter events 2013-2014 and an armed conflict at the Eastern Ukraine administrative reform started with decentralization. It resulted in more opportunities for development of regions, more freedom to make decisions at the local level health management, communal, education and humanitarian fields. Also package of financial instruments will be formed that will allow areas to receive fresh capital.

This reform began after special meeting of the Cabinet of Ministers of 17 April 2014, where special decree "On the organization of the discussion of amendments to the provisions of the Constitution of Ukraine on the decentralization of the government" was adopted in order to ensure that the public events of the draft Law of Ukraine "On Amendments to the Constitution of Ukraine (to decentralize power) (Report on Implementation of the Association Agreement between the European Union and Ukraine, 2015).

In order to strengthen local and regional government, implementation of decentralization reform several legislative acts were approved. The draft law "On Amendments to Certain Legislative Acts of Ukraine Relating to Decentralization of Powers in the Field of Architectural-Construction Control and Improvement of City Planning Legislation" was adopted as a basis; it provides for transfer functions to execute state architectural- construction control from the central government executive authority, which is responsible for public policy in this field, to local selfgovernment and local government executive authorities, as well as for simplification of some permit and authorization procedures in the sphere of construction.

Also, in February 2015 was adopted the Law of Ukraine "On Principles of the State Regional Policy" which determines the basic principles of the State regional policy as an integral part of national internal policy of Ukraine.

In Ukraine, as a unitary state, territorial structure is complex because it includes territorially autonomous ARC. Having certain level of autonomy within a unitary state is not unusual. Such cases of autonomy exist within unitary states like Great Britain, Denmark, Spain, Italy, China, Portugal, Finland and others. For example, in the frame of Denmark such status of the autonomy of administrative

units exists in the case of Greenland and the Faroe Islands; in Spain - Andalusia, Galicia, Catalonia, Basque Country and others.; China - Tibet, Xinjiang, Inner Mongolia and others.; Portugal - Azores and Madeira. The autonomy of the federal states, for example, exists in the Russian Federation.

Typically, the status of autonomy is granted to individual parts of the state, which differ significantly from other political units, historical, geographic, economic, ethnic, linguistic, social, cultural conditions and way of life, customs, traditions and more. Under these conditions, the state tries to address problems of decentralization of public administration or national issues or in order to avoid the problems of separatism, on the initiative of establishing populations' autonomy, declares the autonomy or promote a particular local government area or territory.

In 1954, the Crimean region was transferred to the USSR. On the basis of Art. 14 of the Constitution of the USSR adopted on April 26, 1954 Supreme Soviet of the USSR passed the law, which adopted the Decree of the Presidium of the Supreme Soviet on 19 February 1954 on the transfer of the Crimean Oblast from the RSFSR to the Parliament of Ukraine RSR. Parliament of the Ukraine also amended the Constitution of Ukraine (Article 75) and approved April 29, 1992 the Law of Ukraine "On the Status of the Autonomous Republic of Crimea." These documents are legally defined a new constitutional and legal status of the Crimea as an autonomous republic within Ukraine.

This decision was taken in view of the historical and cultural development of the population in the Crimea, its multi-nationality and freedom of religion. In 1995 the Parliament of Ukraine adopted the Law of Ukraine "About ARC" that the powers of the ARC were classified in particular issues such as adoption, interpretation of the laws of ARC and monitoring their compliance; issues of territorial division of the ARC, setting and changing the boundaries of districts, settlements, settlements promotion to the category of cities, naming and renaming of cities, districts, municipal districts, towns, villages, definition of authority and order of the republican and local governments, NGOs, determine the structure and priorities of the national economy, to provide scientific and technical processes, the establishment and operation of free economic zones in accordance with the laws of Ukraine and others.

Final consolidation of the constitutional status of the ARC came after June 28, 1996 when the Constitution of Ukraine, which determined that the ARC is part of the administrative-territorial structure of Ukraine (Article 133) and an integral part of Ukraine (Article 134) with special powers compared to other administrative-territorial units. On 21 October 1998 Parliament of ARC adopted the Constitution of the ARC and on 23 December 1998 Verkhovna Rada of Ukraine adopted the Law of Ukraine "On Approval of the Constitution of the Autonomous Republic of Crimea," which gave force of the Constitution of the ARC as a statute.

Constitution of Ukraine 1996 year (p. 138) the jurisdiction of the ARC, covered a range of issues of political, social, economic, environmental, cultural and others (Pogorilko, Fedorishko, 2010).\_However, after the results of the referendum on March 16 2014 and after a protracted military confrontation, annexation of the Crimea to the Russian Federation took place. This was done

contrary to international law and is not recognized by the official Kyiv and the international community.

Furthermore, in 2014 process of regionalization of Ukraine escalates. In Donetsk on April 7<sup>th</sup> 2014, supporters of federalization of Ukraine took control of the building of the regional administration announced the formation of an independent "Donetsk People's Republic" (Skibinskij, 2014). On 28 April 2014, Luhansk supporters of federalism during the meeting announced the creation of a "People's Republic of Lugansk» (Goncharov, 2014). On 25 May 2014, on a referendum for the creation of the People's Republic of Luhansk 1. 298,084 person voted (96%) for the proposition and against 51276 (3.8%) voters. Voter turnout reached 75% (1.375.295 voters). After that illegal referendum armed conflict between governmental forces and separatists began to escalate. On 5 September 2014 Minsk Protocol was signed in order to deescalate situation in the Donbas region. According to this agreement was adopted the Law of Ukraine "On temporary Order of Local Self-Governance in Particular Districts of Donetsk and Luhansk Oblasts" in order to provide special regime of self-governance in this region.

The analysis of recent events makes it possible to note that the current political situation in Ukraine is very difficult and precarious, and requires stabilization of specific and clear legal framework of supreme bodies of state power, of course with the participation and support of the international community.

## ***CONCLUSION***

In this article authors analyzed structure of Ukrainian political and economy system. In this manner analyze of the Constitution and other basic legal documents were used. The competences were presented in order to understand the roles of individual political institutions; especially of government and parliament. According to the analysis Ukraine is functioning republic with separation of powers. This is a basic precondition for functioning democracy. In order to further develop it, Ukraine should strengthen its cooperation with a European Union. In accordance with the current situation it is of utmost importance that Ukrainian government shows further willingness to strengthen its European attitude, which will not bring only stability to the region, but also direct financial benefits. Within this framework there is a possibility that Ukraine gets billions of euros which will enable to modernize and improve Ukrainian economy.

Currently, Ukraine is in quite difficult economic, political and social situation. At the same time it is also in the state of civic war, no matter how opposed at different levels in different countries. The solution of this situation would help accelerate not only growth in relevant areas of life (economic, social, environmental, social, health, etc.), but also provide the stability and conditions for Ukraine's accession to the EU. Many countries that have joined the EU get both advantages and disadvantages of this. Therefore, at the first mentioning of Ukraine's accession to the EU, not all Ukrainian officials were supporting this idea and adhere they were opposing the acceptance of the EU legislation and

regulations. In our opinion, the best option for Ukraine would be to abolish the visa regime with the EU and simplify / cancel complicated customs procedures at the border. Such solution would, according to their opinion, bring some positive impact of the EU and reduce the negative consequences of the full admission into the European Union. However, the new government is more focused on Europe and the European style of government. Anyway, Ukrainian economy took a further downturn in the end of 2014. The territory of conflict was an industrial heart of Ukraine where large part of GDP was produced. In order to stabilize the economic situation EU provided economic support in the form of macro-financial assistance and support for development. The total received amount of macro-financial assistance fund is 1.61 billion Euros in 2014. This allocation gave an opportunity to the government to stabilize the economy and to save the country from default.

European style of government means, first of all, fighting corruption. In order to develop and improve the legislation in the field of fighting corruption on October 14, 2014 the Verkhovna Rada approved the anticorruption package of acts including the Law of Ukraine "On the National Anti-Corruption Bureau" and the Law of Ukraine "On Principles of the State Anti-Corruption Policy in Ukraine (the Anti-Corruption Strategy) for 2014 – 2017". Creating of anticorruption bureau gave Ukraine an important chance to decrease level of corruption in country significantly.

Association Agreement made it possible to transform Ukraine into truly European, developed and democratic state. The process of reformation is going on, but there is still a lot of job to do. Process of developing and implementation of necessary reforms is very complicated because of high level of external pressure on Ukrainian economy which results in economical crisis, difficult social and political situation.

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***II PART***  
***INSURANCE***





## **INSURANCE – KEY STRATEGY FOR MANAGING CATASTROPHIC RISKS**

Vera Karadjova<sup>8</sup>

### **ABSTRACT**

*Risks are inevitable, objective category faced by all people and all business entities and they are widespread in all areas of human existence. Risks as an objective category exist regardless of the people wishes and needs and regardless of the level of the human community development. Despite the fact that by the science and technology development a number of risks belong to history (epidemics, some once-fatal diseases etc.), there are also a number of risks that people in modern conditions cannot resist. In this category the greatest threats are so-called catastrophic risks in which there are two main categories:*

- (1) Climate changes; and*
- (2) Natural disasters (earthquakes, floods, etc.).*

*This paper concerns to the need of insurance against catastrophic risks, as one of the strategies to manage these risks. It is about risk hedging that is not an immediate and technical, but indirect, have an economic nature and is achieved by compensating the damages by association; risk sharing and jointly covering of the damages.*

**Key words:** *Catastrophic Risks, Insurance, Natural Disasters, Climate Changes, Uncertainty*

**JEL Classification:** *G22, G32*

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## ***INTRODUCTION***

In conditions of severe climate changes and natural disasters of any kind (which are statistically monitored and processed), the uncertainty on which we all are exposed to, gain intensity. The existence of uncertainty is determined by:

- Lack of information about the environment and changes therein; as well as
- The fact that no quantum of information and techniques for their treatment are able to overcome this phenomenon, keeping in mind that everything is relative, we are sure only about what passed and happened, challenges and dangers lurking in every next moment and the future is another clue about uncertainty.

Starting point of the paper is the second determinant, i.e. raising awareness for the need of insurance against catastrophe risk even in terms of having data on catastrophic risks in the past and the damage they caused. The paper use such data from relevant institutions and their information database (The representative office of Europe RE Macedonia, Insurance Supervision Agency of Republic of Macedonia), but takes into account the fact that all available data, their extrapolation and monitoring trends show only the probability of occurrence of these risks and that insurance plays a crucial role in protecting from them. We are talking about risks that are rare, but if they occur can cause catastrophic damage that lead to large financial losses.

Available data show that in Macedonia there is an expressed probability of occurrence of catastrophic risks such as floods, earthquakes and climate changes (Macedonia belongs to earthquake area and in recent years has registered damages caused by earthquakes, and floods in the last three years have caused a drastic increase in the number of damages). The available data also show extremely low participation of catastrophic risks property insurance. In this sense there is a need for insurance of these risks types because in terms of lack of insurance, the costs to cover the financial damages caused by these natural disasters are borne by the state. The paper objective is to emphasizes the role of the insurance sector in the management of the catastrophic risks and in that sense to raise awareness and responsibility of all stakeholders to insurance the property from catastrophic risks by achieving the principles of mutuality and solidarity in covering potential damages. So, the final goal is to stress the threats of catastrophic risks and the benefits of insurance against them, as one of the best strategies for catastrophic risks management.

## ***LITERATURE REVIEW***

There is a large body of literature referring to the risks, risks management and risks insurance, as a key strategy for managing risks. According to Ostojčić (Ostojčić, 2007, pp.123), if insurance is used as a method risk management, it is necessary to pay attention to the following points:

- to choose the amount of the insured sum;

- to choose an insurance company;
- to choose the types and conditions of insurance;
- to check whether data for compensation are available;
- periodically checking the insurance program.

In the multitude of arguments for and against the use of insurance as a method for financing risks, primarily is that this method reduces uncertainty and the danger of financial losses, but also that the paid premium is a major expense (the possibility of investment of the such engaged funds collapses). Regarding the use of this method of risk management by financial institutions it is necessary to emphasize that ensuring for the insurance institutions is imminent primarily through the institutes co-insurance and reinsurance (Karadjova, 2012, pp.341). But, without applying the strategy of insurance for managing of the catastrophic risks, the costs that they cause and slowing of the economic growth has enormous dimensions. The destruction of property and living resources during natural disasters provoke the regress of development results and worsen the poverty rate, usually over a longer period of time. Typical disasters reduce economic growth by 1% - 2% of GDP, but they may have deeper effects, as it happened during the earthquake in Kobe in 1995, when the GDP per capita decreased by 13% over a longer period of time (World Bank, 2013, pp. 60). Empirical literature suggests that the impact of major disasters on the growth rate is largely negative (Hochrainer, 2009, pp. 8-10).

The basic principles for the sustainable risk management of (i) major natural hazards: storms, floods, earthquakes, heat waves and droughts; (ii) industrial accidents with potentially catastrophic outcomes; (iii) pandemic and (iv) mega-terrorism; are (Kleindorfer et al., 2009, pp. 3-7) are the following:

- the collection and analysis of data on the consequences of previous natural disasters;
- data processing and decision making on the level of risk acceptability, i.e. on the decrease of the likelihood of natural disasters and/or their consequences (e.g. financial protection and economic incentives for investments in risk reduction);
- risk management and response to consequences, including financial management; business strategy, public policy and public-private cooperation;
- impact on society and key actors in terms of achieving efficiency and fairness.

Catastrophic risks cause also risks related to the provision of sufficient quantity of quality food for the population, which again impose the need to find an adequate strategy for managing such risks. Disasters can have devastating impacts on a country's food security – not only in the short term, but also long after they have occurred. They destroy harvests, stocks, and transport routes, and therefore above all the livelihoods of those depending on agriculture. However, the reverse is true as well. It is not unusual for extreme natural events to turn into disasters because the population affected is particularly vulnerable due to a poor food situation. In the worst case, the combined effect of disasters and food insecurity

leads to a fatal downward spiral, with the people hit slipping from one crisis into the next (Walter, World Risk Report, 2015, pp.13). In any case, the net fiscal impact largely depends on the level of private insurance, i.e. on the extent that losses are absorbed by the insurance sector. In fact, over the past two decades, only 20% to 40% of the economic losses arising from natural disasters have been covered by insurance companies, while the remaining 60% to 80% has been borne by taxpayers (Melo, 2013, pp. 4-6).

### ***THE NEED FOR MANAGEMENT OF THE CATASTROPHIC RISKS***

The fact that the catastrophic risks are an objective category necessarily implies the need for adequate managing them. The management is conducted in direction to gather information, their processing and selection, drawing conclusions and making decisions aimed at compilation of the best ratio of risk and the positive and negative effects arising from it.

Talking about catastrophic risks, nearly all of them fall into the category of pure risks, i.e. risks that can be managed by using insurance. The term pure risk is used to refer to a situation where there is only a possibility to happen or not happen loss, but there is no possibility of making profit. One of the best examples of pure risk is the possibility of loss that exists because of the ownership of a property, such as an example, if a person purchased movable or immovable property, he/she in the same moment faces the possibility that there may be something that would have damaged or destroyed that property. Such possibly, a damage to happen that will cause loss and the inability of occurrence of any kind of profit is pure risk, and it can be insured by the insurance sector. In addition, the outcomes that may occur are: the occurrence of the insured event, the occurrence of damage and the occurrence of loss; or no occurrence of the case and the risks of damage or any loss for the insured person. There is no alternative for occurrence of the profit. Mostly, pure risks fall into the category of static risks because they do not arise from disruptions in the economy as a whole, but they affect individuals, and those individuals have to take methods for their coverage. For its part, pure risks because of their number and diversity can be further classified into several subtypes such as (Vaughan, Vaughan, 2000, pp. 10):

- ***Personal risks*** - relating to the probability of loss of the income or assets of an individual as a result of loss of the ability to earn income, and in general the ability to earn income may be affected due to four hazards: a) Premature death; b) inability due to aging; c) illness or disability; and d) unemployment.
- ***Property risks*** – exist everywhere to those who own any kind of property because the property at any time is threatened to be destroyed in some way or stolen. Talking about pure property risks, we can talk about two kinds of loss, such as: *direct loss* and *indirect* (“subsequent”) *loss*, which by its content matches the opportunity cost. The direct loss quite simply can be understood as a value of the property destroyed as a consequence of a

damaging event, for example: the value of the house destroyed by fire, earthquake, flood, etc., the value of the car destroyed in a car accident or some sort of catastrophic risk. Thus, the owner of the property suffers direct loss in a value of his/her assets. On the other hand, the indirect loss refers to the failure of the possibility of earning or occurrence of additional costs as a result of so destroyed property. Thus, if the house or apartment as a living space is destroyed at some kind of risk, its owner besides the direct loss of property value also has additional costs for living elsewhere in the period until the reparation of the consequences of the damage. These extra expenses as decline the possibility of using a destroyed property have the character of indirect or "subsequent" loss. The same situation occurs in the case of business entity that would suffer some kind of destruction of part of his property. If any kind of accident destroyed business premises of the economic entity, the lost is not only the value of that capacity, but also the income that could be earned by its use. Thus explaining the previous conclusion that property risks causing two types of loss i.e.) loss of property; and b) loss from the inability to use the property, resulting in lost revenue or additional or opportunity costs.

- ***The risks of responsibility*** - refer to the possibility of loss incurred due to the need to cover the damage caused to other people or their property. In the core of the risks of responsibility is unintended violation of others or damage of their property due to carelessness and negligence; but also the responsibility may be the result of intentional injuries or damage. This kind of pure risk means that the one who hurt another person or do damage to someone's property due to negligence i.e. by negligence or intentionally caused the damage shall bear varying degrees of responsibility, but in any case is responsible for the damages. Therefore, the risks of responsibility include the possibility of loss for the causer of the damage, that can to occur due to damage or destruction of current assets or future income or as a result of other forms of causing damage due to disrespect of legal obligations arising from intentional or unintentional offenses or endangering the rights of others.
- ***Risks arising from omissions of others*** - it is about risks that often result in financial loss incurred due to failure to meet the obligations assumed by another subject with which previously was signed a contract. The consent of a person to perform a particular service for a previously agreed compensation of any kind, usually resulting in the conviction and hope that the obligation will be fulfilled, or that the service will be performed. The risk in this situation stems from the existence of a real possibility the other person does not realize the agreement, and as a result to suffer financial loss. In the multitude of examples for this form of risk may indicate failure to meet deadlines stipulated in the building agreement according to a project by the construction company, default by a previously concluded agreement by the travel agency, disrespect of the deadline and the previously agreed quality by a business partner who

delivers semi-products, disregard of the deadline for repayment by debtors, breach of undertaken obligations for timely and safe delivery of goods by shipping companies and so on.

Considering the aforementioned classification of pure risks, catastrophic risks encountered in the category of personal and mostly in the category of property risks. Another important point in terms of this distinction is that not all pure risks are in the scope of work of the insurance institutions, but further division of pure risks are on those which can be insured and those that cannot be insured. Besides defining risks that can be insured through legislation in the country concerned, within the areas that the law allows the determination which pure risks will be subject to the work of the insurance institutions is a part of their business policy.

Taking into account the existence of catastrophic risks and the aforementioned need for their management in contemporary conditions in countries with developed financial structure management of these risks is commonly accomplished by the insurance. The process of risk management itself can be understood as a process of identifying, measuring and economic control of risks that endanger not only not only property and income or life and health, but also some business ventures, i.e. in this way the process include business risks with their technical and financial aspects. Thus understood risk management encompasses several phases or steps including (Jovanovski, 2005, pp. 81):

- identifying risks by continuously monitoring of the occurrence and its consequences and by the imagination;
- assessing the probability and severity of potential losses, specifically assessing the breadth and dynamics of risks in terms of size and severity of the damage (determining of the maximum possible damage);
- reviewing and proposing effective methods and procedures which could be used for effectively countering of the possible damages;
- making decisions based on permanent research on the occurrence and risks effects, giving an assessment of the value of those decisions in terms of whether it will decrease or will eventually neutralize damage from different types of risks by self-support, using insurance company or indulging insurance against risks to specialized institutions for insurance and reinsurance.

In the aforementioned steps the need for assessing potential risks and determining the tools and methods for dealing with them is highlighted. In the complex understanding of managing catastrophic risks it is necessary to complement these steps with the risk – return ratio, i.e. it would have expanded the use of preliminary procedure not only for the pure risks, but for the conditionally speculative risks also. In this, the activities of managing risks also includes the decision on insurance of the risks in professional insurance institutions or retention of some of the potential risks and assessment of necessary financial funds for the required level of prevention in order to avoid undesirable events or to cover the damages caused by uninsured risks. In that sense, if such estimated expenses exceed the amount of the premium, the decision will be to ensure the property using professional insurer and vice versa.

The need to manage catastrophic risks especially multiplied in recent decades characterized by significant climatic changes and the occurrence of natural disasters (earthquakes, floods, etc.), that despite the stated technical - technological progress and the development of rapid information systems yet still, and at certain times even stronger threat to people's lives and threat acquired goods too.

## ***CATASTROPHIC RISKS AND INSURANCE***

The scope of the risk category in terms of insurance requires determining the risks that can be insured. Specificity of the insurance sector is that it has the risk as a subject of working. Every risk in order to be subject of insurance must meet certain conditions. Among the most important conditions that the risks have to meet as it can be treated as a subject of insurance, can be stated (Kočović, Šulejić, 2002, pp. 60):

- it should be a possibility to occur a particular event or a possibility for realizing the risk;
- there must be uncertainty about the occurrence of the event;
- event should include the danger of realizing the economic loss;
- the risk must be repeated or may not be an isolated case;
- the risk must be independent of the will of the insured and all other interested parties;
- the event must be permitted by law, the public order and morality;
- it is necessary to diversifying the risk in space and time; and
- homogeneity of the risk.

Catastrophic risks of the categories climate change and natural disasters meet all these conditions, and that makes them official candidates for insurance.

*The risk that ensures must be possible*, or be the result of an event that may occur. Example: existing building is ensured by fire, flood, earthquake or other disasters. Only if at the time of conclusion of the insurance contract the insured object no longer exists or cannot be put at risk, the contract is null and void. The agreement is also void if the insured object is completely destroyed in another accident that was not the subject of insurance.

Uncertainty as a prerequisite for insurance must exist, and it can be absolute and relative uncertainty. Absolute uncertainty refers to situations and events that are normally possible, but that cannot be known with certainty if it will happen or will not happen as long as the insurance contract is valid. The relative uncertainty on its side relates to events for which can certainly be confirmed that will happen, but nobody can know to what extent the damage will be or more often nobody knows when they will occur. A classic example of relative uncertainty is life insurance. Risk ceases to be uncertain if the person with his/her free will take action for its occurrence, in which case we can talk about negligence. Such behaviours are managed by the requirement for the risk to be insured, relating to the request for the risk to be insured risk, which means to be independent of the will of the insured and other interested parties. Despite all quantitative techniques

and sophisticated complex systems using which the occurrence of catastrophic risks can be predicted (i.e. it is predicted the probability of their occurrence), they still contain an element of uncertainty for the occurrence and usually there is absolute uncertainty for their occurrence.

Risk in insurance must relate to events that cause economic loss and cannot cover events which have non-economic nature. For example, it is not possible to insure against the consequences that may have occurred while walking on a picnic area since this event does not cause any economic damage, but we can ensure from certain types of injuries or ensure the life of adverse events that can be realized during the walk, because that will cause economic loss.

The subject of insurance can be only repetitive risks. The risks that are possible, but non-repetitive are not subject to insurance because of two main reasons: (a) a person does not feel the need to insure against risks which happen extremely rare; and (b) repetition is needed by the insurance institution in order to monitor the risks, setting certain rules for the future and calculate the probability of risk occurrence in the future. It does not mean establishing of any system of regularity and sequence of events, but only detection of some regularities of occurrence of the risks in a large number of cases and over a long period of time. Increasing the intensity of climate changes and increasingly complex systems for predicting the frequency of natural disasters are only some of the precognitions in favor of the condition for insurance of the catastrophic risks.

The risk that is managed by insurance must be unknown to both parties in the insurance relationship i.e. for the insurer and for the insured and neither of the two sides on his/her will and knowledge may not cause its occurrence. Catastrophic risks occur exactly in this way - any technique for predicting cannot create "security" for any subject about occurrence of a catastrophic risk. In other case, if insured subject with his/her activity caused the occurrence of damage even without intent, if he/she had any part in the occurrence of the damage or has not applied the basic precautions and acting in good faith, does not occur or shall terminate the obligation of the insurance institution. However, in any case it is impossible to completely exclude the influence of the human will on the incidence of risks and a number of risks arise because of a certain mode of people behavior. In such case, the turning point is to what extent can be allowed influence and will of the involving subjects, because the basic point in the insurance of different risks is that they have to occur uncertainly and to be based not by the solely influence of man with his behavior, because in that case the insurance cannot exist and can not function. But, the degree of the human will is quite subjective view and can be treated differently. The bad intention always exclude the liability of the insurer. Lighter types of negligence are generally covered by insurance, and the gross negligence can be smooth or cannot be smooth with the intention, which vary from case to case (Karadjova, 2012, pp. 8). The intent designated as certainty as opposed to the notion of risk in all legal systems is excluded from insurance, and its exclusion can be accomplished in two ways: (a) directly - when an insurer refuses the insured to reimburse damages caused deliberately; and (b) indirectly - by the right of the insurer to seek compensation for deliberately caused damages

from the causer, after he had already paid for the damage. In various types of insurance gross negligence (carelessness) is treated in different ways. According to the traditional rules negligence equals the intention, which is also used as a rule in the insurance, but there are exceptions to this rule. As arguments in favor of rejecting the negligence as intention can be considered as following (Nikolovski, Janev, 2001, pp. 21):

- gross negligence differs from the intention in that it has no consciousness or will to cause harmful effects;
- the degree of influence of the will in the realization of the risk is much lower in relation of intention and is not of exceptional character;
- if the gross negligence would be treated in the same way as intention, then it would mean that we assume the sloppiness of the individuals, although the general rule of law is to assume good faith.

Despite these arguments, there are considerations that rejection of gross negligence as intention means encouraging the reduction of attention of the insured, loss of a sense of responsibility and thus denying the idea of prevention etc., despite that the equalization of gross negligence with intention may have significant practical effects in the process of collecting evidence and avoiding abuse. However, the insurance institutions in their practical work cover only those risks whose realization not depend on the will of the insured (the property owner or persons who manage with it), nor of those who are interested in insurance in order to maintain the uncertainty as one the basic elements of the risks that can be insured and to avoid possible speculation. When we are talking about catastrophic risk and their insurance, these aspects have not a central position, considering the fact that the impact of humans on natural disasters is not very pronounced. However, these aspects can possibly be taken into consideration for example in nuclear disasters; technical aspects (dams, dikes, etc.) in floods; building standards (for earthquakes) and similar. The impact of humans on climate change is also not strong, at least in terms of the insurance relationship, but still cannot fully exclude correlation. Exhaust gases, the concentration of CO<sup>2</sup> in the atmosphere, pollution of water and soil, high buildings and stopping the natural processes of atmospheric movements, ozone holes etc. are just some of the examples that the human population participate in climate change.

The risk that is covered by the insurance *shall not be in contrary to law, public order and morals*. Talking about legal requirements, things are very clear and accurate, i.e. the law clearly says what can be the object of insurance, and the remaining cases are excluded. In that case it is called legal limit of risk that can practically be implemented in two ways: (a) to lay down the conditions a risk must meet in order to be covered by insurance; and (b) to prohibit coverage of certain risks by insurance. Despite legal, there is also a contractual restriction that similarly to legal restriction can be accomplished in two ways: (a) by determining the dangers which concludes insurance in the insurance contract (positive way); and (b) by certain clauses in the contract which carried off the insurance of certain events and risks (negative way). Talking about moral norms it is undisputed that they should be respected, but it is questionable the perceptions of morality because

it contains a certain dose of subjectivity. The widest understanding of morality as not doing what we do not like to happen to us is differently perceived by different subjects, and on the other hand some complicated life situations imply a need in common sense and awareness to make some "immoral" but at the moment necessary procedures that will cause less damage than if we did not make them. It is about some procedures that in other circumstances would be considered highly unethical and would not be undertaken, for example: destruction of a property during the flood in order to prevent further bigger damage of any kind. Such ethical dilemmas are differently treated in the legislation of different countries.

*Temporal and spatial dispersion of the risk* means that to maintain insurance as a system of covering the damages, it can cover only risks that affect a small number of community members threatened by the same kind of danger. This is in line with mutuality and solidarity as basic insurance principles, as well as the application of the law of large numbers and mathematical probability. Catastrophic risks that can simultaneously affect a large number of community members (for example: Earthquake, flood, hurricane, tsunami, etc.) cannot be insured by the companies that operate locally on a limited geographical area. The need for realization of the principles of mutuality and solidarity requires broad temporal and spatial dispersion of catastrophic risks, often through co-insurance and reinsurance.

*Homogeneity of a risk* is an important prerequisite for its inclusion in the insurance and it is necessary for the accuracy of statistical calculations. Homogeneity is also important for uniform distribution of the risk burden, because different risks need funds for their coverage. The homogeneity of risks is achieved by grouping them according to different criteria such as: the nature of the risk, the subject of insurance, the value of insurance, duration of insurance relation, etc., and it is in the same time necessary for accurately calculation of the premium that has to be paid for the insurance.

About determination of the risk in insurance it is necessary to highlight that the risk in relations of insurance may be viewed from three aspects as follows (Nikolovski, Janev, 2001, pp. 50):

- *from the perspective of the insured subject* - the risk here does not represent some specifics, and just two questions are important for the insured subject: (1) economic issue, which relates to whether the insurance is economically worthwhile to him/her in respect of the insurance premium that should be paid; and (2) a legal point of view, which gives an answer to the question what risks he/she will transfer to the insurer.
- *from the perspective of the insurer* - the risk is seen as a risk taken by the insured subject and also two aspects are reviewed: (1) legal aspect, which should answer the question about that which risks that have the insured subject, the insurer undertakes upon himself; (2) economic aspect, risk is seen according to that is it worthwhile its undertaking in respect of the premium that is paid and the amount that the insurer will have to pay when the insured event occurs.

- *from the perspective of the rights and the obligations of the parties* - the risk is seen as a legal category and there are elements that are common to all types of insurance and items that appear only in certain types of insurance.

At the end of this explanation of the term and the concept of risk in general and the connection of the catastrophic risks and the insurance, we can once again state that in the theory in this area there is widespread disagreement about the definition of risk. The term of risk can be defined as (1) *the possibility of loss*; (2) *the probability of loss*; (3) *uncertainty*; (4) *incumbent of the concession than expected result*; or (5) *the probability of any other different result than expected*. However, it can be distinguished two elements that are common to all those definitions, uncertainty and loss (Vaughan, Vaughan, 2000, pp. 4):

- The term *uncertainty* is implicit in all definitions of risk, with special emphasis on catastrophic risks: the outcome should be uncertain. When we say that there is a risk, at least two possible outcomes exist. If we know for certain that the outcome will be a loss, there is no risk.
- At least one of the possible outcomes is undesirable. This may be a *loss* in general sense; something that a subject holds is lost or may be less profit than what was possible.

One acceptable definition for risk could be that: *The risk is a condition in which there is a possibility of unfavourable deviation from the desired outcome, which is expected or in hope* (Vaughan, Vaughan, 2000, pp.4). While risk is defined as a condition in the real world and is a combination of circumstances in the environment and in such circumstances there is a *possibility of loss*. In those circumstances, the possibility of loss must not be measurable, but simply must exist. This means that whether the risk degree can or cannot be measured, the possibility of an unfavorable outcome must be between zero and one (Karadjova, 2012, pp. 11). Undesirable event is described as "unfavorable deviation from the desired outcome that was expected or that is in hope". The indication of a desired outcome that is expected or that is hopeful takes into consideration both the individual and total exposure to loss in the circumstances of catastrophic events. Individual hopes that the adverse event will not happen and the existence of a possibility that it could still happen, are forming the risk. The fact that the outcome of any event can be different from that, to which we hope, contains the possibility of loss or risk.

## ***CATASTROPHIC RISKS – CONITIONS IN MACEDONIA***

Analyzing the problem that is the subject of elaboration (catastrophic risks and the need for their insurance), this section contain some detailed information about the risk of flooding and earthquakes in Macedonia in recent years. Regarding the floods in February 2013, heavy rainfalls affected Eastern, Central and Northern regions of Macedonia causing overflow of more than 10 rivers, and as a result, damaging dams and bridges, isolating several villages, triggering drinking water shortages and electricity cuts. The most affected flooded areas were: Kumanovo,

Shtip, Sveti Nikole, Strumica, Valandovo, Ohrid, Probishtip and Kochani. These events led to a series of negative consequences to the country's infrastructure, residential and commercial properties and thousands of hectares of agricultural land (EUROPA RE, 2016, pp.1). The largest damages to farmers were registered in the region of Strumica, Radovis, Bitola, Gevgelija, Bogdanci, Stip, Veles, Resen Valandovo and Kocani. The total flood induced damage to 2000 farmers was estimated to be around 100 million MKD. The municipality of Kumanovo suffered damages estimated at around 4-5 million EUR. Around 300 households from socially vulnerable categories suffered from flood induced damages to their homes (EUROPA RE, 2016, pp.1).

Storm and heavy rains caused flooding in Skopje. Several main boulevards were completely flooded. Lots of vehicles remained blocked in the water and there were 11 cases of fallen trees which blocked some of the streets in the city - and later more such cases were reported by citizens. Also, many citizens reported flooded basements in the aftermath of the event. The flooding caused overflow of the sewage system in some parts of Skopje. After the storm, the Protection and Rescue Directorate received more than 70 cases related to flood induced damages (EUROPA RE, 2016, pp.2).

In 2015 Macedonia was again hit by flooding. Most affected by the floods were Pelagonija, Strumica, Gevgelija and Tikves. The rains in some places reached up to 57 liters per square meter. In Bitola 58 households suffered damages, 3 in Novaci, 33 in Mogila, 69 in Kicevo, 19 in Strumica, 10 in Bosilovo, 10 in Negotino, 13 in Prilep, 7 in Krivogastani, 11 in Resen, 4 in Stip, 7 in Demir Hisar, 4 in Kavadarci, 4 in Gostivar, 4 in Oblesevo, 4 in Pehcevo. The overall damage from the flood is estimated at 25 million EUR. 13,5 million EUR, or almost 60% of the damage affected the agriculture sector, 4-5 million EUR of damages were caused to the irrigation systems, around 4 million EUR of damages were caused to the road infrastructure while the rest of the damages were attributed to households. The region of Stumica alone suffered 4,3 million EUR of damages, which includes the city of Strumica and 6 villages in this municipality. 621 houses in Strumica were damaged from the floods, out of which 465 houses are located in the village of Murtino. The agriculture in this municipality was severely damaged (approximately 1,500 ha of agricultural land were flooded) (EUROPA RE, 2016, pp.3). The floods have caused major harm to farmers in the municipality of Mogila. Also damages have several houses in Mogila, Novaci, Zrnovci and Obleshevo.

Notable floods with major damages in the last decade occurred in Macedonia in 2003, 2004, 2013, 2014 and 2015. Looking at data for the last period however, it can also be concluded that Macedonia suffers major damages from flooding in certain time intervals.

Table 1: Major Historic Flood Events in Macedonia

|      |  |
|------|--|
| 1962 | River Vardar flooded 12.735 ha, river Crna flooded 25.000 ha and river Strumica flooded 8.000 ha; losses were 7% of GDP  |
| 1979 | 45.860 ha were flooded all together. Total damage costs were estimated at USD 193.8 million (Skoklevski, 2003).  |
| 2003 | Damaged dam on the River Markova resulted in evacuations of over 800 people in the cities of Gradsko Baldovci and Kuklish  |
| 2004 | 26 municipalities mainly in the area of the upper Vardar were affected. Also the central, southern and south eastern parts of the country were affected with estimated damage of approximately USD 21 million (primarily in the agriculture sector). |

Source: UN/ISDR and the World Bank, 2008

In regards to earthquakes, the territory of Macedonia is situated in an area of very high seismicity stretching along the Mediterranean seismic belt. The country has experienced earthquakes with magnitudes 6 - 7.8 across ten seismic zones. Some of the strongest earthquakes in Macedonia occurred in 1904 in Pehcevo - Kresna (7.8 magnitude), in 1931 in Valandovo - Dojran (6.7 magnitude), and in 1963 in Skopje (6.1 magnitude). Two major earthquakes happened in the last 25 years. The first one with magnitude of 6.1 happened in 1990 in the Gevgelija and Bogdanci region whereas the second one with magnitude of 5.8 occurred in 1994 in the Bitola region. The 1994 earthquake caused economic loss of 3.4 per cent of the country's GDP (EUROPA RE, 2016, pp. 6). The most significant EQ event in Macedonia was the 1963 earthquake in Skopje with magnitude of 6.1, which killed 1,100 people, injured 4,000 and affected 160,000 people. The total economic losses were estimated at USD 1 billion, or 15 per cent of Yugoslavia's GNP. The earthquake was centred almost directly under the city of Skopje, with the heaviest damage observed in buildings located within the city limits. Shaking from the earthquake was felt in Sofia (Bulgaria), Thessaloniki (Greece) and Belgrade (Serbia). The total seismically affected area was estimated at 180,000 square kilometers. 42.2 per cent of residential buildings were partially or totally collapsed; 32.9 per cent of the apartments were heavily damaged; more than 67.4 per cent of dwelling houses were unusable after the earthquake. Out of the total building area (including dwelling houses), 80.7 per cent was destroyed; 66.5 per cent of hospitals and clinics were heavily damaged; 74.3 per cent of primary and secondary schools were heavily damaged (Petreski, 2003). Earthquakes of low-intensity constantly occur on the territory of Macedonia in the last few years, which proves that the country is vulnerable to geological hazards. Based on the World Bank/UN studies, Macedonia has experienced an economic loss of about USD 5 million during the last 4 decades due to earthquake (UN/ISDR and the World Bank, 2008).

Macedonia is also exposed to other Hazards and Climate Changes. Agriculture is one of the most significant sectors in the Republic of Macedonia in terms of employment, rural livelihood, food security and exports. It engages more than 19% of the population and accounts for 12% of the country's GDP. The Macedonian agriculture is particularly sensitive to climate change. The rural population is highly exposed and vulnerable to the weather risks associated with climate change. Potential adverse fluctuations in temperature, precipitation and the frequency of extreme weather events (such as drought, heat, flood, forest fire, precipitation) are likely to exacerbate farmers' persisting difficulties related to production, yield and market accessibility. Historical data indicate that Macedonia is characterized by a highly variable climate that has already experienced an increase in mean temperature and moisture deficits, as well as an increase in the severity of extreme events like drought, heat waves and forest fires (EUROPA RE, 2016, pp. 7).

### ***NEED FOR PROPERTY INSURANCE AND INSURANCE OF THE CATASTROPHIC RISKS - SITUATION IN MACEDONIA***

The WorldRiskIndex calculates the disaster risk for 171 countries worldwide. "Whether it be an earthquake or a tsunami, a cyclone or floods, the risk of a natural event turning into a disaster always depends only partly on the force of the natural event itself. The living conditions of the people in the regions affected and the options available to respond quickly and to provide assistance are just as significant. Those who are prepared - who know what to do in the event of an extreme natural event, have a greater chance of survival. Countries that see natural hazards coming, that are preparing for the consequences of climate change and are providing the financial means required will be better prepared for the future. The WorldRiskReport should contribute to look at these links at a global level and draw future-oriented conclusions regarding assistance measures, policies and reporting" (WorldRiskReport 2011). So, the WorldRiskIndex is meant to give answers to four key questions:

- How likely is an extreme natural event, and will it affect people?
- How vulnerable are people to natural hazards?
- To what extent can societies cope with acute disasters?
- Is a society taking preventive measures to face natural hazards to be reckoned with in the future?

The representation through the Index and its four components provides answers to this and highlights both, the problems and the fields of action, very clearly. Nevertheless, it is also important to keep the limits of such a representation in mind. Just like any other index, the WorldRiskIndex can only consider indicators for which comprehensible, quantifiable data is available (WorldRiskReport 2015, pp. 8).

The following figure represents the concept of the World Risk Index and its integral components.



*Figure 1: The Concept of the WorldRiskIndex*

*Source: Institute of Hazard, Risk and Resilience Blog, Durham University, <http://ihrrblog.org/2011/09/26/2011-un-world-risk-index>*

Managing catastrophic risks, primarily the risks of floods and earthquake for which there are data that are a serious threat to the property and that at certain intervals appear with varying intensity, is an objective need. Thereby, it has to be taken into consideration the environment and the probability of occurrence of the catastrophic risks. Catastrophe risk environment in Macedonia is as follows (Poposki, 2013):

- Relatively small country with limited risk diversification possibilities and high risk accumulation in main cities;
- Low public awareness, culture, education;
- (state is considered as the only catastrophe risk absorbing mean);
- Low level of insurance penetration and lack of standalone catastrophe products;
- Poor catastrophe insurance risk management, including lack of proper modeling;
- Lack of available / affordable risk transfer alternatives;
  - Low business volumes to attract reinsurers or any other risk transfer means
  - Gap between local insurers and international reinsurers premium rates.

In the WorldRiskIndex overview for 2015, Macedonia is on the 95th place among 171 countries.

Table 2: WorldRiskIndex overview – 2015  
(first 10, Macedonia, region countries, the last one)

| Rank  | Country                    | WorldRiskIndex | Exposition | Vulnerability | Susceptibility | Lack of coping capacities | Lack of adaptive capacities |
|-------|----------------------------|----------------|------------|---------------|----------------|---------------------------|-----------------------------|
| 1     | Vanuatu                    | 36.72 %        | 63.66 %    | 57.68 %       | 35.69 %        | 81.16 %                   | 56.20 %                     |
| 2     | Tonga                      | 28.45 %        | 55.27 %    | 51.47 %       | 28.78 %        | 81.80 %                   | 43.82 %                     |
| 3     | Philippines                | 27.98 %        | 52.46 %    | 53.33 %       | 32.00 %        | 80.06 %                   | 47.94 %                     |
| 4     | Guatemala                  | 20.10 %        | 36.30 %    | 55.36 %       | 34.52 %        | 80.08 %                   | 51.48 %                     |
| 5     | Solomon Islands            | 19.29 %        | 29.98 %    | 64.34 %       | 44.55 %        | 85.66 %                   | 62.82 %                     |
| 6     | Bangladesh                 | 19.26 %        | 31.70 %    | 60.76 %       | 39.05 %        | 86.55 %                   | 56.69 %                     |
| 7     | Costa Rica                 | 17.17 %        | 42.61 %    | 40.29 %       | 21.60 %        | 64.34 %                   | 34.94 %                     |
| 8     | Cambodia                   | 16.82 %        | 27.65 %    | 60.84 %       | 39.50 %        | 86.95 %                   | 56.07 %                     |
| 9     | Papua New Guinea           | 16.82 %        | 24.94 %    | 67.46 %       | 55.29 %        | 84.07 %                   | 63.02 %                     |
| 10    | El Salvador                | 16.80 %        | 32.60 %    | 51.53 %       | 29.83 %        | 74.90 %                   | 49.85 %                     |
| ..... |                            |                |            |               |                |                           |                             |
| 37    | Albania                    | 10.03 %        | 21.25 %    | 47.19 %       | 20.13 %        | 74.00 %                   | 47.43 %                     |
| ..... |                            |                |            |               |                |                           |                             |
| 71    | Greece                     | 7.06 %         | 21.11 %    | 33.45 %       | 17.78 %        | 50.82 %                   | 31.75 %                     |
| ..... |                            |                |            |               |                |                           |                             |
| 77    | Serbia                     | 6.89 %         | 18.05 %    | 38.18 %       | 18.07 %        | 65.95 %                   | 30.51 %                     |
| ..... |                            |                |            |               |                |                           |                             |
| 93    | Bosnia and Herzegovina     | 6.18 %         | 14.02 %    | 44.06 %       | 19.62 %        | 69.68 %                   | 42.88 %                     |
| ..... |                            |                |            |               |                |                           |                             |
| 95    | T. f. Y. Rep. of Macedonia | 6.14 %         | 14.38 %    | 42.70 %       | 20.53 %        | 63.85 %                   | 43.72 %                     |
| ..... |                            |                |            |               |                |                           |                             |
| 119   | Bulgaria                   | 4.26 %         | 11.66 %    | 36.51 %       | 18.64 %        | 55.88 %                   | 35.02 %                     |
| ..... |                            |                |            |               |                |                           |                             |
| 121   | Croatia                    | 4.21 %         | 11.53 %    | 36.55 %       | 18.03 %        | 55.74 %                   | 35.88 %                     |
| ..... |                            |                |            |               |                |                           |                             |
| 134   | Slovenia                   | 3.57 %         | 11.59 %    | 30.80 %       | 14.95 %        | 50.98 %                   | 26.48 %                     |
| ..... |                            |                |            |               |                |                           |                             |
| 171   | Qatar                      | 0.08 %         | 0.28 %     | 30.13 %       | 9.04 %         | 44.88 %                   | 36.47 %                     |

Source: WorldRiskReport 2015: Bündnis Entwicklung Hilft (Alliance Development Works), and United Nations University – Institute for Environment and Human Security (UNU-EHS), 2015, pp. 64-66

Another method of risk assessment is probabilistic risk assessment which uses mathematical models to combine any possible future hazard scenarios, information about the exposed assets and the vulnerability, to provide results of an estimate of probable loss levels in a region of interest. Unlike historical estimates, probabilistic risk assessment takes into account all disasters that can occur in the future, including very intensive losses with long return periods, and does overcome the limitations associated with estimated derived from historical disaster loss data. Probabilistic risk assessment gives an overview of estimated losses, which can provide guidance to predict and plan for future losses. This information can be used to plan and prioritize investments and strategies for managing disaster risk

(UNISDR (GAR)). The Average Annual Loss (AAL) is the expected loss per annum associated to the occurrence of future perils assuming a very long observation timeframe, while the Probable Maximum Loss (PML) is a risk metric that represents the maximum loss that could be expected, on average, within a given number of years. PML is widely used to establish limits related to the size of reserves that, for example, insurance companies or a government should have available to buffer losses: the higher the return period, the higher the expected loss. PML always have associated a mean return period. Mean return period of 100, 250, 500, 1000 and 1500 years means the 5%, 2%, 1%, 0.5% and 0.3% probability respectively of exceeding those losses in 5 years.

*Table 3: Average Annual Loss (AAL) by hazard (Macedonia)*

| <b>Hazard</b>            | Absolute<br>[Million<br>US\$] | Capital<br>stock<br>[%] | GFCF<br>[%] | Social<br>exp<br>[%] | Total<br>Reserves<br>[%] | Gross<br>Savings<br>[%] |
|--------------------------|-------------------------------|-------------------------|-------------|----------------------|--------------------------|-------------------------|
| <b>Earthquake</b>        | 26.26                         | 0.080                   | 0.883       | 1.191                | 1.057                    | 0.768                   |
| <b>Flood</b>             | 7.23                          | 0.022                   | 0.243       | 0.328                | 0.291                    | 0.211                   |
| <b>Multi-<br/>Hazard</b> | 33.49                         | 0.101                   | 1.127       | 1.519                | 1.348                    | 0.980                   |

*Source: <http://www.preventionweb.net/countries/mkd/data> (20.07.2016)*

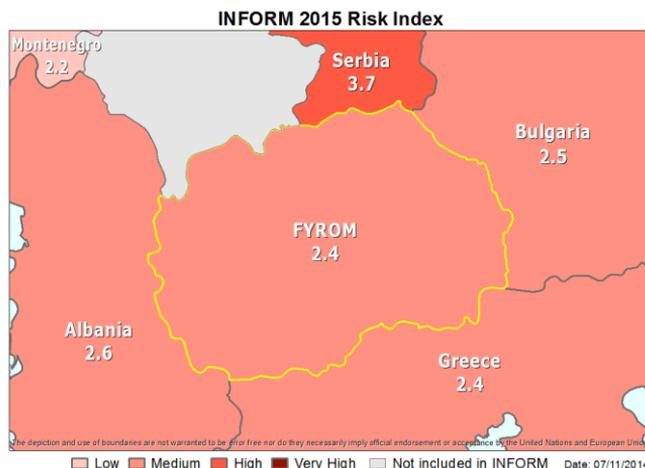
*Table 4: Probable Maximum Loss (PML) - Mean return period in years (Macedonia)*

| <b>Hazard*</b>     | 20 | 50  | 100 | 250 | 500 | 1000  | 1500  |
|--------------------|----|-----|-----|-----|-----|-------|-------|
| <b>Earthquake</b>  | 66 | 150 | 264 | 520 | 809 | 1,210 | 1,473 |
| <b>Wind</b>        | 0  | 0   | 0   | 0   | 0   | 0     | 0     |
| <b>Storm Surge</b> | 0  | 0   | 0   | 0   | 0   | 0     | 0     |
| <b>Tsunami</b>     | 0  | 0   | 0   | 0   | 0   | 0     | 0     |

*\* Values for hazard are in million US\$*

*Source: <http://www.preventionweb.net/countries/mkd/data>*

And at last, the INFORM 2015 Risk Index is calculated and it is 2.4. According to this Index, Macedonia has a rank 138. The INFORM model adopts the three aspects of vulnerability reflected in the UNISDR definition. The aspects of physical exposure and physical vulnerability are integrated in the hazard & exposure dimension, the aspect of fragility of the socio-economic system becomes INFORM's vulnerability dimension while lack of resilience to cope and recover is treated under the lack of coping capacity dimension (Index for Risk Management 2015 (INFORM 2015)).



*Figure 2: INFORM 2015 Risk Index*

*Source: <http://www.preventionweb.net/countries/mkd/data>*

Macedonia's economic loss potential from a major natural disaster is estimated in the order of almost 2 billion USD, which represents over 40% of the country's GDP. Insurance coverage of natural hazards is almost non-existent among homeowners and small and mid-size businesses in Macedonia. Currently, only 1-2 houses out of 100 have private catastrophe insurance coverage, and as a result, in case of a major catastrophe (cat) event most of families and small and medium enterprises (SMEs) would have to receive government help. In 2013, the share of property insurance constituted 18,3% of the Gross Written Premium in Macedonia. Catastrophic risks have only 3,46% share of the non-life premiums in the insurance market. 0,90% goes to flood risk, 1,32% goes to earthquake risk and 1,24% goes to hail and frost risks. Only 0,24% of households have earthquake insurance, while only 0,14% have flood insurance. Only 3,41% of residents have household insurance while agriculture insurance penetration is also less than 5%. These indicators point out to that the Macedonian catastrophe insurance market is insufficiently developed (Europa Re Second Regional Insurance Conference (Insurance Supervision Agency of Macedonia)).

## **CONCLUSION**

The essential function of insurance to be used as a strategy for managing pure risks have some specifics in managing catastrophic risks. Namely, talking about catastrophic risks first of all there is a difficulty in the assessment of the probability for their occurrence in a given location and precise determination of the time of their occurrence (despite their statistical monitoring and the methodology for processing available data). Mostly it is talking about natural phenomena (floods, earthquakes, tsunamis, hurricanes, etc.), and despite the overall development of science and technology still there are not existing any precision

measuring instruments with which these can be accurately predicted. On the other hand, if this kind of adverse event still happen, it will affect damages at the same time on a number of the community at risk members, and because of that there is a difficulty in the application of basic principles of mutuality and solidarity on which the insurance is based. However, having in mind the frequency of these occurrences and the exposure of all entities of the occurrence of catastrophic risks, insurance in the narrow sense (through its ex - post action) is an essential strategy for covering any eventual damage caused by the occurrence of catastrophic risks. The potential of the insurance to be used for quickly overcoming the consequences of catastrophic events is supplemented through the use of reinsurance and through a wide spatial and temporal dispersion of catastrophic risks.

In this sense, there is a need for the citizens and economic subjects to understand the need and importance of insurance of their property from catastrophic risks. This means raising awareness of the need for insurance of property from these catastrophic risks and explain the advantages and benefits that the subjects would have if however appear some of the risks, regardless of the probability of their occurrence. In this regard, the paper emphasizes the importance of insurance for the catastrophic risks, which will achieve the protection of property of individuals and legal entities, supporting economic growth and increase the range of services offered by insurance companies in Macedonia, as well as the share of the insurance sector in the overall financial system of the country. The intention to initiate the subjects to buy property insurance against catastrophic risks is to overcome stereotypical thinking that insurance against risks that seldom happen is just fussing money. The use of insurance as a strategy for managing catastrophic risks accomplished multidimensional effects, such as: increasing the range of insurance services for insurance against catastrophic risks offered by insurance companies, increasing the share premium of insured households from catastrophic risks in relation to total gross premium of insurance and increasing the share of premiums of insurance against catastrophic risks (earthquakes, floods, etc.), in the increase of GDP.

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# **ACTUARIAL TARIFF FORMATION BASICS FOR LIFE INSURANCE PRODUCTS**

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## **ABSTRACT**

*Life insurance is the most perfect type of savings and it is of the utmost importance for the economic system of one country. Life insurance is also important for individuals who want to ensure themselves in case of old age, reduction of work abilities, to secure their families in material sense in case of their death, etc. It is in the interest of every state to have as many insurance companies and as good offer of life insurances. Today's modern insurance cannot be imagined without the application of statistical and mathematical methods and actuarial mathematics in the calculation of insurance tariffs.*

*The topic of this paper are actuarial basics of tariff formation for life insurance products which are applied and can be successfully applied in our conditions. Special attention shall be paid to deferred lifelong personal annuity, mixed insurance of capital and family insurance. In addition to individual life insurance, we shall also explain the insurance of two lives.*

*This paper gives a detailed procedure of determining tariffs, i.e. prices for deferred lifelong personal annuity, mixed insurance of capital and family insurance. Within family insurance for two, three or more persons on the basis of the theory of probability, we provided you with different possibilities which can occur in practice and with tariffs calculated based on that.*

**Key words:** *Life Insurance, Statistical And Mathematical Methods, Actuarial Mathematics, Insurance Tariffs*

**JEL Classification:** *I13*

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## ***INTRODUCTION***

Life insurance is a specific type of insurance which is significant not only from the aspect of individuals, but also from the aspect of the entire economy of one country.

Life insurance is the most significant type of insurance in all developed countries in the world, and the data that almost 70% of the entire insurance portfolio consists of life insurances proves that. The significance of life insurance for the economic activity of one country is reflected in the size of insurance funds which can be placed on the financial market.

The advantage of this type of insurance is the creation of premium reserve, whose funds are long-term and safe, which means they can be invested both in the capital market and money market. Premium reserve funds can be invested in securities, mortgage loans or real estates, which ranks insurance companies among the most important ones on the financial market.

Life insurance offer is versatile. In developed countries in the world, policyholders can choose from the variety of insurance policies the one that looks the most acceptable.

Life insurance in Serbia and other developing countries is at a really poor level of development. Its share in the total insurance portfolio is significantly smaller than the EU average, which leads us to a conclusion that premium reserve funds are really small, so the share of life insurance companies on the financial market is insignificant. It is necessary to pay more attention to life insurance development in Serbia, and this can be done through education of citizens and their more intense interest in the advantages of this type of insurance.

Stabilization of insurance market and creation of an adequate environment will create conditions for attracting serious strategic partners who will introduce new products to the market, which will be of good quality, as well as new knowledge. What speaks in favor of the abovementioned is the experience of the countries from the region, where new and strong participants have contributed to the increase of competitiveness of the existing companies (Piljan et al., 2014, pp. 14)

In this paper, special attention shall be paid to the actuarial basics of the formation of tariffs for life insurance products, which are applied and can be successfully applied in our conditions. Special attention shall be paid to deferred lifelong personal annuity, mixed insurance of capital, as well as to family insurance. In addition to individual insurance, we shall also explain the insurance of two or more lives.

## ***SPECIFICS OF LIFE INSURANCE***

Life insurance represents a specific type of insurance which provides great possibilities for the development of not only the insurance industry but of the entire

economy of one country. It primarily refers to all types of insurances where, with the termination or duration of the life of one or more persons, the insurer is obliged to pay the insured sum to the policyholder. We can clearly see from this definition that the insurer has an irrevocable commitment to, in case of death or survival of certain period, pay out the insured sum to the policyholder or to the designated person.

Life insurance is an economic instrument used for transferring the risk of untimely death from an individual to a group. The event which is the subject of insurance is at the end very definite because nobody lives forever. Probability of policyholder's death increases year after year. Risk in life insurance doesn't consist of whether the policyholder will die, but rather of when they will die (Vaughan, Vaughan, 2000, pp. 123). In case of life insurance, the possibility of just a partial loss doesn't exist, so when the insured event occurs the insurance company is obliged to pay the nominal policy amount.

Life insurance is designed as the most reliable form of economic protection of policyholders or persons close to them from serious financial losses which can be caused by the occurrence of unpredictable events: untimely death and longevity (loss of work capacity). In addition to insurance protection which ensures economic and social safety in accordance with the individual needs and financial possibilities of policyholders or persons close to them, the function of capital accumulation is also achieved (Grujić, 2008, pp.52).

Life insurance differs from property insurance which results in the following specifics:

1. Risk covered in life insurance is realized on the policyholder's personality, and that personality cannot be expressed through material values, i.e. money, so the damage on the policyholder (injury, invalidity, death, etc.) cannot be expressed in money.

2. The objective of this insurance is the payment of the in advance established insured sum of money, and not the compensation for damages caused by the insured events.

3. The principle of compensation, which is a characteristic of property insurance, is applied in somewhat different form in case of life insurance. It is not possible in life insurance to compensate for the loss of our loved ones, but we can compensate for the funds spent due to the occurrence of death. In general, each insurance contract has got an insurance interest, but the principle of material interest is applied differently in life insurance in comparison to property insurance. If the person who is signing the policy is at the same time the policyholder, then there is no legal problem. An important question concerning the interest for insurance occurs when the person concluding the contract is not the same person whose life is in question.

Then the law demands that the interest for insurance exists in time of making the contract. The question of interest for insurance is rare in life insurance because most of the policies are bought by persons whose life is being insured (Grujić, 2008, pp. 53).

In life insurance, we can never really compensate for the realized risks, but the consequences of the realization of that risk can be mitigated by a material compensation, i.e. payment of the insured sum.

The most important curiosity of life insurance is reflected in the integration of the functions of insurance and savings. Insurance protection enables economic and social safety of policyholders. Savings through life insurance is purposeful, continual and long-term. Thanks to the function of saving, obligation to pay out the insured sum of money in case of risk realization (in case of death, survival, etc.) comes from life insurance. In order to achieve the equivalence of all the payments made in form of premiums with obligations, i.e. payments of the insured sums, the interest-rated savings part of the premium is accumulated during the policy period and it forms the so-called mathematical reserve.

Mathematical reserve funds calculated in accordance with the law are there to digest the property used to cover future obligations on the basis of those types of insurances for which it is necessary to form the mathematical reserve, and which must not be used to cover the obligations from other types of insurances (Zakon o osiguranju, 2014, Article 133).

The obligation to form mathematical reserve comes from the specificity of life insurance. Life insurance is about the risk of death which is changeable and which grows progressively with age. If the paid premium should cover the risk of death of the policyholder in every moment, then it would have to grow in accordance with the growth of probability of death, i.e. in accordance with mortality tables (Kočović, 2000, pp.20). The paying of this so-called natural premium is not economical for the policyholder and it would significantly burden their budget and income in the later years in life. For that reason, we resort to paying the average premium, which would be equal and constant during the policy period. During young age, when the death risk is the smallest, policyholders would pay an average premium which is, at that point, larger than the natural. In time, the risk of death increases, but the insurer still pays the average premium which will, by the end of the insurance period, be smaller than the natural premium. Insurers want to be able to meet their obligations concerning the pay outs of the insured sum at any given moment, so in the first years of the policy period they put aside the difference between the average and natural premium and form premium reserve. That reserve will be used as coverage for the obligations in later years when the average premium is less than natural. For the amount of premium reserve, policyholders postpone their spending for later period. Until that time, premium reserve is available for use and its funds can be used. Premium reserve funds can be placed on the capital and money market, made into fixed-term deposits, invested in long-term investments, etc.

There is an extremely large number of factors which influence the development of life insurance. Among them, we shall underline two basic ones:

1. height of GDP;
2. stability of domestic currency

Possibilities of covering future needs through life insurance are greater when we have a higher level of domestic product and the standard of living. Undeveloped countries have a low level of living standard, so the population is focused on covering the current needs and is not in the possibility to set aside a part of their incomes for life insurance.

Monetary instability is one of the factors which negatively affects the availability and development of life insurance. In the conditions of inflation, total devaluation of domestic currency occurs, hence the population avoids life insurance as one of the most important form of savings.

It can be noticed that countries with a low GDP per capita have an undeveloped life insurance market and vice versa. Total income from insurance premiums at the global level was 4 597 billion USD in 2011. The share of life insurance was 2 627 billion USD and the share of other types of insurance was 1 970 billion USD (World bank, 2013). Highly developed countries, such as USA, Japan, Great Britain, Germany, France, etc., are dominating on the world's life insurance market.

In 2014, life insurance premium registered the real growth of 4.8% globally speaking, wherein in developed countries it amounted up to 3.9%, in developing countries 9.1%, while in Central and Eastern Europe a decrease of 1.7% was registered. In 2015, the global growth of life insurance premium was estimated at 4.3%, in developed countries 3.0%, in developing countries 10.4%, and in the region of Central and Eastern Europe around 3.0%.

Four countries with the largest share in total premium achieved on the global market (USA, Japan, Great Britain and China) in 2013, covered more than half of that market (51.4%), wherein Serbia was at the 82<sup>nd</sup> place by premium achieved.

Insurance sector in Serbia is still undeveloped and, according to the developmental level, it is significantly below the average of the EU member states. What supports this are the indicators of the development of insurance market – ratio of total premium and GDP and total premium per capita.

According to the share of premium in GDP in 2013, which was 1.7%, Serbia is at the 66<sup>th</sup> place in the world, while this indicator for the EU member states went up to 7.5%. However, in comparison with the group of developing countries with an average of 2.7%, and with the countries of Central and Eastern Europe with an average of 2.9%, and considering that countries like Turkey, Romania and Russia are lagging behind Serbia, it can be concluded that Serbia is at a satisfactory position. According to the premium per capita of 128 USD or 78 EUR in 2013, Serbia takes the 68<sup>th</sup> place in the world. The same indicator for the EU member states is 2 660 USD, for the regional countries of Central and Eastern Europe 235 USD, and for the developing countries 128 USD. Switzerland is at the 1<sup>st</sup> place in the world with 7 800 USD, then the Netherlands and Denmark, while Slovenia with 1 275 USD and Croatia with 327 USD take the 28<sup>th</sup>, i.e. 48<sup>th</sup> place respectively. In 2014, premium in the estimated GDP in Serbia had a share of 1.8%, while premium per capita was 98 USD or 80 EUR. (NBS,2015,pp. 6)

## ***PROBABILITY OF LIFE AND DEATH OF ONE PERSON***

Individual insurance is the insurance which refers to individual persons or objects. For individual life insurance, we shall first derive the probability of life and death of one person and then their life expectancy.

Let  $l_x, l_{x+1}, \dots, l_{x+n}$  be the numbers of persons who are  $x, x+1, \dots, x+n$  years old.

From the mortality tables, we can see that

$$l_x > l_{x+1} > \dots > l_{x+n}$$

If several persons between  $x$  and  $(x+1)$  years died, the number of those persons is:

$$d_x = l_x - l_{x+1}$$

Probability that the person who is  $x$  years old will live up to  $x+1$  years is:

$$p_x = l_{x+1} / l_x$$

Probability that the person who is  $x$  years old will live up to  $x+2$  years is:

$${}_2p_x = l_{x+2} / l_x$$

Probability that the person who is  $n$  years old will live up to  $x+n$  years is:

$${}_np_x = l_{x+n} / l_x$$

Probability that the person who is  $x$  years old will live up to  $x+n$  years is complex and equal to the product of probability that the person who is  $x$  years old will live up to  $x+1$  years, that the person who is  $x+1$  years old will live up to  $x+2$  years, etc., and that the person who is  $x+n-1$  years old will live up to  $x+n$  years (Kočović, 2000, pp. 73):

$${}_np_x = p_x * p_{x+1} * \dots * p_{x+n-1}$$

i.e.

$${}_np_x = (l_{x+1} / l_x) * (l_{x+2} / l_{x+1}) \dots (l_{x+n} / l_{x+n-1})$$

$${}_np_x = l_{x+n} / l_x$$

Probability that the person who is  $x$  years old will live up to  $x+1$  years or that they will die during the  $x+1$  years of age is:

$$q_x = d_x / l_x$$

i.e.

$$q_x = (l_x - l_{x+1}) / l_x$$

We further get:

$$q_x = 1 - (l_{x+1} / l_x)$$

i.e.

$$q_x = 1 - p_x$$

Probability that the person who is  $x$  years old will not live up to  $x+2$  years is:

$${}_2q_x = (l_x - l_{x+2}) / l_x = 1 - (l_{x+2} / l_x)$$

i.e.

$${}_2q_x = 1 - {}_2p_x$$

Probability that the person who is  $x$  years old will not live up to  $x+2$  years is:

$${}_2q_x = (l_x - l_{x+2}) / l_x = 1 - (l_{x+2} / l_x)$$

i.e.

$${}_2q_x = 1 - {}_2p_x$$

Probability that the person who is  $x$  years old will not live up to  $x+n$  years is:

$${}_nq_x = (l_x - l_{x+n}) / l_x = 1 - (l_{x+n} / l_x)$$

i.e.

$${}_nq_x = 1 - {}_np_x$$

Which means that:

$${}_np_x + {}_nq_x = 1.$$

In order to find out what the probable life expectancy of the person who is  $x$  years old is, we shall presume that the event is probable if its probability is equal to  $1/2$ .

If we presume that for the  $l_x$  persons that will happen when there are  $l_{x+n}$  alive persons, then we shall get the following:

$$l_{x+n} / l_x = 1/2$$

i.e.

$$l_{x+n} = l_x / 2.$$

We can determine the previously mentioned number from the tables and it represents a probable life expectancy of the person who is  $x$  years old.

We define the medium life expectancy as the average number of years which a person who is  $x$  years old would survive. From the  $l_x$  number of persons who are  $x$  years old, only  $l_{x+1}$  persons will be alive in the following year. Each of those  $l_{x+1}$  persons will survive 1 year, hence the total number of the years survived shall be  $l_{x+1}$ . In the second year, only  $l_{x+2}$  persons will survive one year, which gives us  $l_{x+2}$  of the survived years, etc. This is only when we have a presumption that the person who will die during the following year, will die at the beginning of that year (Koćović, 2000, pp.77).

Total number of years survived by  $l_x$  persons will be:

$$l_{x+1} + l_{x+2} + \dots$$

We get the medium life expectancy when we divide that total number of years survived by  $l_x$  persons by the  $l_x$  number of persons:

$$e_x = (l_{x+1} + l_{x+2} + \dots) / l_x$$

If we presume that those who will die during the following year, will die at the end of that year, we would get that the total number of years survived by  $l_x$  persons is:

$$l_x + l_{x+1} + \dots$$

and medium life expectancy is:

$$e'_x = (l_x + l_{x+1} + \dots) / l_x = 1 + e_x$$

Persons who die during one year, don't die only at the beginning or at the end of that year, but during the entire year. In that way, we can come to a conclusion that medium life expectancy is somewhere between the final values of  $e_x$  i  $e'_x$ .

Basic numbers which characterize the mortality table are related to the living and to the deceased.

Basic number related to the living persons are:

$l_x$  – the number of living persons who are  $x$  years old

$l_{x+1}$  – the number of living persons who are  $x+1$  years old

$l_{x+2}$  – the number of living persons who are  $x+2$  years old ...

Basic numbers which are related to the deceased are:

$d_x$  – the number of persons who died during the  $x+1$  year

$d_{x+1}$  – the number of persons who died during the  $x+2$  year

$d_{x+2}$  – the number of persons who died during the  $x+3$  year ...

The number of persons who are  $x$  years old represents the persons who survived  $x$  number of years, but didn't survive  $x+1$  number of years, so it is equal to the difference between the number of persons who are  $x$  years old and  $x+1$  years old (Kočović, 2000, pp.79):

$$d_x = l_x - l_{x+1}$$

With the use of basic numbers and calculating interest rate, applied in insurance organizations, we calculate commutative numbers:

$D_x = l_x / r^x = l_x * II_p^x$  – the number of discounted living persons who are  $x$  years old

$D_{x+1} = l_{x+1} / r^{x+1} = l_{x+1} * II_p^{x+1}$  – the number of discounted living persons who are  $x+1$  years old

$D_{x+2} = l_{x+2} / r^{x+2} = l_{x+2} * II_p^{x+2}$  – the number of discounted living persons who are  $x+2$  years old

$D_{x+3} = l_{x+3} / r^{x+3} = l_{x+3} * II_p^{x+3}$  – the number of discounted living persons who are  $x+3$  years old.

We shall use  $N_x$  to designate the sum of the numbers of discounted living persons starting from the age  $x$  to the oldest age  $\omega$ :

$$N_x = D_x + D_{x+1} + \dots + D_\omega$$

$$N_{x+1} = D_{x+1} + D_{x+2} + \dots + D_\omega,$$

$$N_x - N_{x+1} = D_x \text{ ili}$$

$$N_x - D_x = N_{x+1}.$$

Next commutative number  $S_x$  which represents the sum of the numbers of discounted living persons starting from the age  $x$  to the oldest age  $\omega$  survived by the observed group of people in the table:

$$S_x = N_x + N_{x+1} + \dots + N_\omega$$

$$S_{x+1} = N_{x+1} + N_{x+2} + \dots + N_\omega$$

$$S_x - S_{x+1} = N_x \text{ tj.}$$

$$S_x = N_x + S_{x+1}.$$

Then we also have commutative numbers for the deceased.

$C_x = d_x / r^{x+1} = d_x * II_p^{x+1}$  – the number of discounted persons who died during the  $x+1$  year

$C_{x+1} = d_{x+1} / r^{x+2} = d_{x+1} * II_p^{x+2}$  – the number of discounted persons who died during the  $x+2$  year

$C_{x+2} = d_{x+2} / r^{x+3} = d_{x+2} * II_p^{x+3}$  – the number of discounted persons who died during the  $x+3$  year

$C_{x+3} = d_{x+3} / r^{x+4} = d_{x+3} * II_p^{x+4}$  – the number of discounted persons who died during the  $x+4$  year

$M_x$  number represents the sum of the numbers of discounted persons who died, starting from those who died during the  $x+1$  years:

$$M_x = C_x + C_{x+1} + \dots + C_{\omega-1}$$

We further get:

$$M_{x+1} = C_{x+1} + C_{x+2} + \dots + C_{\omega-1}$$

So:

$$M_x - M_{x+1} = C_x$$

i.e.

$$M_x - C_x = M_{x+1}$$

Next commutative number is  $R_x$  and it represents the sum of the numbers of discounted persons who died, starting from those who died during the  $x+1$  years of age, i.e.

$$R_x = M_x + M_{x+1} + \dots + M_{\omega-1}$$

We further get:

$$R_{x+1} = M_{x+1} + M_{x+2} + \dots + M_{\omega-1}$$

So

$$R_x - R_{x+1} = M_x$$

i.e.

$$R_x = M_x + R_{x+1}$$

## ***INDIVIDUAL LIFE INSURANCE***

When it comes to life insurance, many of our insurance companies are offering a series of conveniences that policyholders would have. Definitely the greatest convenience of this type of insurance is savings.

By paying lump-sum premium or annual premium, we can ensure annuity insurance. Insurance by lump-sum premium payment is highly impractical considering that it demands that the policyholder owns significant money funds, hence it is very rare in practice. The most common insurance is that by annual premiums, wherein payments are made in constant time intervals, in limited number of years from the day of the insurance.

When signing the contract, the policyholder pays the first premium, the second one after a year, etc. Annual premiums can be observed as personal annuities which the insured pays to the insurance company.

We shall now write about some types of life insurances from the aspect of their prices (tariffs), which would be the most attractive to our life insurance market.

### ***DEFERRED LIFELONG PERSONAL ANNUITY***

Annuity payments with the insurance of deferred lifelong personal annuities start after many years of the date of the insurance, and lasts until the end of life of the insured. The annuity is paid only if the insured lives  $x + m$  years. To ensure this type of annuity, the insured needs to pay the annual premium. If death does not occur earlier, the payment of the annual premium takes up to a year before the start of annuity payments.

If the temporary annual premium is designated with  $p ({}_m a_x)$ , and the payments to the insurer from  $l_x$ , number of insured will be:

- at the beginning of the first year  $l_x * P ({}_m a_x)$
- at the beginning of the second year  $l_{x+1} * P ({}_m a_x)$
- at the beginning of the third year  $l_{x+2} * P ({}_m a_x)$

at the beginning of the  $m$ -year  $l_{x+m-1} * ({}_m a_x)$

Payments to insurers will be:

- at the beginning of  $(m + 1)$  year  $l_{x+m}$
- at the beginning of  $(m + 2)$  year  $l_{x+m+1}$
- at the beginning of  $(m + 3)$  year  $l_{x+m+2}$

The sum of the discounted values of the payments on the day of the insurance must be equal to the sum of the discounted values of the pay offs, according to the principle of equivalence:

$$P ({}_m a_x) * (l_x + l_{x+1}/r + l_{x+2}/r^2 + \dots + l_{x+m-1}/r^{m-1}) = \\ = l_{x+m}/r^m + l_{x+m+1}/r^{m+1} + l_{x+m+2}/r^{m+2} + \dots,$$

After division with  $r^x$  we get:

$$P ({}_m a_x) * (l_{x+1}/r + l_{x+2}/r^2 + \dots + l_{x+m-1}/r^{m-1}) = \\ = l_{x+m}/r^m + l_{x+m+1}/r^{m+1} + l_{x+m+2}/r^{m+2} + \dots,$$

expressed through cumulative figures we get:

$$P({}_m a_v) (D_x + D_{x+1} + D_{x+2} + \dots + D_{x+m-1}) = D_{x+m} + D_{x+m+1} + D_{x+m+2} + \dots$$

$$P ({}_m a_x) (N_x - N_{x+m}) = N_{x+m}$$

$$P ({}_m a_x) * (N_x - N_{x+m}) / D_x = N_{x+m} / D_x$$

$$P ({}_m a_x) = N_{x+m}/D_x : (N_x - N_{x+m}) / D_x$$

## **MIXED INSURANCE OF CAPITAL**

In annuity insurance, after only one payment, the insured is entitled to receive a certain amount of annuity in each year, while in the capital insurance, the insured is paid out once or possibly twice. In the insurance of capital in case of endowment, the insurer is obligated to pay the insured sum to all those insured who live up to the agreed time from the date of the insurance; otherwise the insurance company retains the deposit. Insurance of the capital in case of death may be: life, deferred, temporary and deferred temporarily.

By merging endowment and capital insurance in case of death, we get mixed insurance. The insurer will definitely pay out the capital to the insured or insurance beneficiary.

If we look at the person who is  $x$  years old, who insured  $K$  RSD to  $n$  years, which he/she will get if they live  $n$  number of years or would be paid to his heirs in the event of his death before the expiry of the agreed period, the net table would be determined as follows:

Net table for 1 RSD of the insured capital is  $A_{x,n}$ .

The insurer will receive from  $l_x$  policyholders aged  $x$  years  $l_x A_{x,n}$  RSD

Based on these payments the insurer will pay out the living persons or heirs:

at the end of the first year  $d_x$  RSD

at the end of the second year  $d_{x+1}$  RSD

at the end of the third year  $d_{x+2}$  RSD

at the end of the  $n$  year  $d_{x+n-1} + l_{x+n}$  RSD

According to the principle of equivalence of discounted payments, we get:

$$l_x A_{x,n} = d_x/r + d_{x+1}/r^2 + d_{x+2}/r^3 + \dots + d_{x+n-1}/r^n + l_{x+n}/r^n$$

After division with  $r^x$  we get :

$$(l_x/r^x) A_{x,n} = d_x/r^{x+1} + d_{x+1}/r^{x+2} + d_{x+2}/r^{x+3} + \dots + d_{x+n-1}/r^{x+n} + l_{x+n}/r^{x+n}$$

$$D_x A_{x,n} = C_x + C_{x+1} + C_{x+2} + \dots + C_{x+n-1} + C_{x+n} + D_{x+n}$$

Given that

$$M_x = C_x + C_{x+1} + C_{x+2} + \dots + C_{x+n-1} + C_{x+n}$$

$$M_{x+n} = C_{x+n} + C_{x+n+1} + C_{x+n+2} + \dots$$

We get :

$$D_x A_{x,n} = M_x - M_{x+n} + D_{x+n}$$

Net table for 1 RSD of the insured capital is

$$A_{x,n} = (M_x - M_{x+n}) / D_x + D_{x+n} / D_{x+n}$$

i.e.

$$A_{x,n} = {}_nA_x + {}_nE_x$$

## ***FAMILY INSURANCE***

Linked life insurance is a kind of insurance in which the insured event depends on the life of two or more persons. Thus, in the case of two people there are many different types of insurances, which can be seen in the case of couple co-insurance.

If an immediate annuity is being paid for a long time while both spouses are alive, we are referring to connected annuity. If the payment of annuity follows only after the death of a spouse, and if it is paid to the spouse who survived, then it is a case of bilateral annuity for survival. If the annuity is paid only in the event when one certain spouse remains in life, it is a unilateral annuity in case of outliving. If an annuity paid for a pair of spouses, and in case of death of one of them, continues to be paid to the surviving spouse in whole or partially, then such an annuity is called linked annuity with a dual full or partial transition. Linked annuity where, when one spouse dies, the payments continue only if a predetermined spouse is in life, is called linked annuity with single pass.

For insurance in case of death of two lives, we differ insurance to the first death, which is due for payment after the death of the first deceased spouse and insurance in case of death to the second death, which is payable after the death of the second spouse, in which case users of the insurance are inheritors. Some of these insurances may be concluded in short form, and subsequently through the endowment insurance supplemented to get mixed insurance. There may also appear one-sided and bilateral agreements.

For all these and other types of insurances for two or more lives, the value of one-time net premiums can be reached using the same methodology like in one-life insurance. The difference lies in the fact that different probabilities are used, and thus different commutative numbers.

Consider a married couple, and mark the starting age of husband with  $x$ , and wife's with  $y$ . If with  $l_x$  we mark the number of the living persons from mortality tables for men, and with  $l_y$  the number of the living from mortality tables for women, then the product  $l_x l_y = l_{xy}$  can be treated as the number of living couples of age combinations  $x$  and  $y$ . Based on this we can establish mortality tables for couples, which would contain all age combinations  $x=0,1,2,3, \dots, \omega_x$  i  $y=0,1,2,3, \dots, \omega_y$ . The prerequisite for the admissibility of such a method, which is based on the product  $l_x l_y$ , for the construction of such mortality tables for couples, is the independence of the death of one member on the other. This is an assumption which is in reality only partially fulfilled, because the death of a spouse often leads to early death of another.

Deaths  $d_x$  and  $d_y$  from the male, i.e. female mortality tables correspond with the number of  $d_{xy}$  couples in which after one year at least one of the spouses died. For  $d_{xy}$  we apply the following formula:

$$d_{xy} = l_{xy} - l_{x+1, y+1}$$

Generalization of this two-dimensional row of outliving ( $l_{xy}$ ) to more than two persons, e.g. to brothers and sisters, parents and children and other different groups can be carried out without problems according to the abovementioned method of

product. Thus, for four people, age combinations  $x, y, u, w$ , we obtain four-dimensional row of outliving according to the formula:

$$I_{xyuw} = I_x I_y I_u I_w$$

The number that follows from the alive quadruplets  $I_{xyuw}$  if within one year at least one of these four persons dies, can be obtained as follows:

$$d_{xyuw} = I_{xyuw} - I_{x+1,y+1,u+1,w+1}$$

Like we can calculate the number of discounted living persons aged  $x D_x = l_x v^x$  for the number of living persons  $l_x$ , we can also calculate the number of discounted living couples  $D_{xy}$  of aging combination  $x, y$  for the living couples  $l_{xy}$ . For this, we can use three possible formulas (Isenbart, Munzener, 1994, pp.133):

$$D_{xy} = I_{xy} v^x = I_x I_y v^x = D_x I_x \text{ or}$$

$$D_{xy} = I_{xy} v^y = I_x I_y v^y = D_y I_x \quad (\text{Davis' formula}), \text{ or}$$

$$D_{xy} = I_{xy} v^{x+y/2} \quad (\text{De Morgan's formula})$$

Where  $v = 1/r$

The first two are somewhat simpler for calculations, and the third has the advantage of being symmetric in  $x$  and  $y$ . Although all three formulas lead to different numerical values, their use leads to the same premium equation. Commutative numbers  $N_{xy}$  and  $S_{xy}$ , which, in the insurance of one person, correspond to the commutative numbers  $N_x$  and  $S_x$  can be obtained as follows:

$$N_{xy} = D_{xy} + D_{x+1,y+1} + D_{x+2,y+2} + \dots$$

$$S_{xy} = N_{xy} + N_{x+1,y+1} + N_{x+2,y+2} + \dots = D_{xy} + 2D_{x+1,y+1} + 3D_{x+2,y+2} + \dots$$

Corresponding commutative numbers for more than two, e.g. for four persons with the age combination  $x, y, u, w$  can be obtained based on the formula:

$$D_{xyuw} = I_{xyuw} v^{x+y+u+w/4}$$

For the same purpose, one of the following formulas can be used:

$$D_x I_y I_u I_w \text{ or } I_x D_y I_u I_w \text{ or } I_x I_y D_u I_w \text{ or } I_x I_y I_u D_w$$

Analogous to the number  $C_x = d_x v^{x+1}$  that represents the number of discounted deceased persons in one-life insurance, in insurance of connected lives, we can calculate the number of discounted scattered pairs, i.e. couples in which at least one spouse died. To obtain this size, again we can use three formulas:

$$C_{xy} = d_{xy} v^{(x+y)/2+1} \quad \text{or}$$

$$C_{xy} = d_{xy} v^{x+1} \quad \text{or}$$

$$C_{xy} = d_{xy} v^{y+1}$$

Numbers  $M_{xy}$  and  $R_{xy}$  are obtained by the same procedure as the numbers  $M_x$  and  $R_x$  in the insurance of one person, or according to the formula:

$$M_{xy} = C_{xy} + C_{x+1,y+1} + C_{x+2,y+2} + \dots$$

$$R_{xy} = M_{xy} + M_{x+1,y+1} + M_{x+2,y+2} + \dots = C_{xy} + 2C_{x+1,y+1} + 3C_{x+2,y+2} + \dots$$

Between the size of the  $C_{xy}$ ,  $M_{xy}$  and  $R_{xy}$  on the one hand and the size of  $D_{xy}$ ,  $N_{xy}$  and  $S_{xy}$  on the other hand, apply the following relations:

$$C_{xy} = v D_{xy} - D_{x+1,y+1}$$

$$M_{xy} = D_{xy} - dN_{xy}$$

$$R_{xy} = N_{xy} - dS_{xy}$$

In groups of four people with an age combination  $x, y, u, w$ , the number  $C_{xyuw}$  can be calculated as follows:

$$C_{xyuw} = d_{xyuw} v^{x+y+u+w+1/4}$$

Numbers  $M_{xyuw}$  and  $R_{xyuw}$  are calculated as the sum, i.e. the sum of the sums of numbers  $C_{xyuw}$ , i.e. in accordance with the procedure referred to above.

Calculating one-time net premiums for the various types of insurances of two or more lives are most simply implemented by using the rules of probability. We start from the position that for the payment of the insured sum  $S$ , which should take place after  $n$  years with the probability  ${}_n p$ , should be paid single premium  $S_n p v^n$ . Since all incoming probability can be expressed through the  $n$ -year survival probability, we can say that this probability is of special importance. Being that  $n$ -year probability of survival for certain spouses are defined as

$${}_n p_x = l_{x+n} / l_x \quad \text{and} \quad {}_n p_y = l_{y+n} / l_y,$$

the probability of survival of a couple  ${}_n p_{xy}$ , i.e. for the probability that after  $n$  years the two people are still alive, we apply:

$${}_n p_{xy} = l_{x+n, y+n} / l_{xy} = l_{x+n} / l_x \cdot l_{y+n} / l_y = {}_n p_x {}_n p_y$$

For more than two people, for example - for four people of age combinations  $x, y, u, w$ , we apply the following formula:

$${}_n p_{xyuw} = l_{x+n, y+n, u+n, w+n} / l_{xyuw} = {}_n p_x {}_n p_y {}_n p_u {}_n p_w$$

To be able to calculate probabilities for more complex insurance cases it is necessary to know the features of probability, of which the three basic will be listed here ([2], pp.134).

**Multiplicity:**

The probability of the realization of a complex event, which occurs by embodiment of two or more events that are independent of each other, is equal to the product of the probability of the individual events.

**Additivity:**

Probability of the realization of a related event, which occurs by embodiment of first, the second or third, etc. event from one row of mutually exclusive events, is equal to the sum of the probability of individual events.

**Complementarity:**

The probability of the realization of a single event and an alternative event (i.e. anti-event) is complemented to 1.

For an  $x$ -year-old insured, the main events are (Isenbart, Munzener, 1994, pp.135):

living up to  $x + n$  years, for which there is a probability  ${}_n p_x$

not living up to  $x + n$  years, for which there is a probability  ${}_n q_x = 1 - {}_n p_x$

death between age  $x+n$  and  $x+n+1$ , for which there is a probability of

$${}_n q_x = l_x - l_{x+n} / l_x = {}_n p_x - {}_{n+1} p_x$$

The probability  ${}_nq_x$  can be reached with the help of additional attitude, because non-experienced age  $x+n$  implies that the person either dies of old age  $x$  or in  $x+1$  or  $x+2$  or ... or  $x+n-1$ . In this way we come to the formula:

$${}_nq_x = 1 - {}_1q_x - {}_2q_x - \dots - {}_{n-1}q_x = d_x / l_x + d_{x+1} / l_x + \dots + d_{x+n-1} / l_x = {}_0q_x + {}_1q_x + \dots + {}_{n-1}q_x$$

Furthermore, the probability  $n / q_x$  be calculated based on the multiplication stance because the event "die in old age  $x + n$ " represents an event that is made up of independent events "to experience age  $x + n$ " and "to die in the course of  $x + n$  year". Through this process we come to the following formula:

$${}_nq_x = d_{x+n} / l_x = l_{x+n} / l_x * d_{x+n} / l_{x+n} = {}_npxq_{x+n}$$

Based on the probabilities  ${}_npx$ ,  ${}_nq_x = 1 - {}_npx$  and  ${}_nqx = {}_npx - {}_{n+1}px$  and the corresponding probabilities for a single  $y$ -year-old person, the probabilities for the most important cases of the linked lives insurance can be reached. We will continue to define appropriate events ( ${}_nE_1, {}_nE_2, \dots$ ) which are important for this insurance and the given probabilities of the realization of these events ( $p({}_nE_1, p({}_nE_2), \dots$ ).

## ***INSURANCE OF TWO LIVES***

We will observe a couple who is being insured, and different opportunities that may arise.

${}_nE_1$ : husband and wife after  $n$  years are still in life.

$$p({}_nE_1) = {}_npxnpy = {}_npxy$$

${}_nE_2$ : husband experiences age  $x + n$ , and wife dies before the age of  $y + n$ .

$$p({}_nE_2) = {}_npxnq_y = {}_npx(1 - {}_npy) = {}_npx - {}_npxy = {}_npx/y$$

${}_nE_3$ : husband dies before the age  $x + n$ , and wife is experiences age  $y + n$

$$p({}_nE_3) = {}_nq_xnpy = (1 - {}_npx) {}_npy = {}_npy - {}_npxy = {}_npx/y$$

${}_nE_4$ : husband and wife after  $n$  years are not alive.

$$p({}_nE_4) = (1 - {}_npx) (1 - {}_npy) = 1 - {}_npx - {}_npy + {}_npxy$$

${}_nE_5$ : at least one of two persons is in life after  $n$  years

This event means that both husband and wife, or a husband or a wife, are still in life, so the probability is calculated on the basis of add paragraph.

$$p({}_nE_5) = p({}_nE_1) + p({}_nE_2) + p({}_nE_3) = {}_npx + {}_npy - {}_npxy = {}_npxy$$

Since the event  ${}_nE_5$  can be seen as the opposite event of event  ${}_nE_4$ , based on complementary paragraph we can see that:

$$p({}_nE_5) = 1 - p({}_nE_4)$$

${}_nE_6$ : One and only one of these people, after  $n$  years is still in life.

$$p({}_nE_6) = p({}_nE_2) + p({}_nE_3) = {}_npx + {}_npy - 2{}_npxy = {}_npxy^{(1)}$$

${}_nE_7$ : at least one of the two persons after  $n$  years is not alive, i.e. a couple is dispersed after  $n$  years.

This event means that event  ${}_nE_2$  or  ${}_nE_3$  or  ${}_nE_4$  occurs, and it can be understood as the opposite event to event  ${}_nE_1$ .

$$p({}_nE_7) = p({}_nE_2) + p({}_nE_3) + p({}_nE_4) = 1 - p({}_nE_1) = 1 - {}_n p_{xy} = {}_n q_{xy}$$

${}_nE_8$ : couple is dispersed in  $n+1$  year after the start of insurance.

$$p({}_nE_8) = d_{x+y, y+n} / l_{xy} = l_{x+n, y+n} - l_{x+n+1, y+n+1} / l_{xy} = {}_n p_{xy} - {}_{n+1} p_{xy} = {}_n q_{xy}$$

This formula can be reached in another way:

$$p({}_nE_8) = {}_n p_{xy} q_{x+n, y+n} = {}_n p_{xy} (1 - p_{x+n, y+n}) = {}_n p_{xy} - {}_{n+1} p_{xy} = {}_n q_{xy}$$

${}_nE_9$ : husband and wife die, at the latest, in  $n+1$  year after the commencement of insurance, and at least one of them dies in the current year.

This event is made up of the following events: "the husband dies before the age  $x+n$ , and the wife just at the age of  $y+n$ ", "husband dies at age  $x+n$ , and the wife before the age  $n+y$ " and "husband dies at age  $x+n$ , and wife in the age  $y+n$ ."

$$p({}_nE_9) = {}_n q_{xn} q_y + {}_n q_{xn} q_y + {}_n q_{xn} q_y = {}_n q_x + {}_n q_y - {}_n q_{xy} = {}_n q_{xy}$$

${}_nE_{10}$ : husband dies at age  $x+n$ , and wife is experiencing age  $x+n+1$  or dies after the husband.

In the event of both spouses dying in the same year, we accept the assumption that the probability that a woman dies after her husband is  $1/2$ .

$$p({}_nE_{10}) = {}_n q_{x+n} + {}_1 p_x + 1/2 {}_n q_{xn} q_y = 1/2 ({}_n p_x - {}_{n+1} p_x) ({}_n p_y - {}_{n+1} p_y) = {}_n q^1_{xy}$$

After arranging and introducing shifts:

$${}_{n+1} p_x = p_x {}_n p_{x+1} \quad {}_1 p_y = p_y {}_n p_{y+1},$$

finally we get:

$${}_n q^1_{xy} = 1/2 ({}_n p_{xy} - {}_{n+1} p_{xy} + p_{yn} p_{x, y+1} - p_x {}_n p_{x+1, y})$$

### ***INSURANCE OF CAPITAL IN CASE OF ENDOWMENT OF ONE COUPLE OF AGE X AND Y***

If the insured sum is paid to a couple who after  $n$  years is still in life, or in the case of occurrence of events  ${}_nE_1$ , then the one-time premium for this insurance is:

$$B = S \cdot {}_n p_{xy} v_x = S (l_{x+n, y+n} / l_{xy}) v_n$$

If the numerator and denominator are multiplied by  $v_x$  or  $v_y$  or  $v_{x+y/2}$  (depending on which formula is used for  $D_{xy}$ ), we get the following formula:

$$B = S (D_{x+n, y+n} / D_{xy}) = S_n E_{xy}$$

In this case  ${}_n E_{xy}$  represents a one-time net premium for the insured sum 1 for insurance in case of survival of a couple of age combination  $x+y$ . On the basis of events  ${}_nE_2$ ,  ${}_nE_3$ ,  ${}_nE_5$  or  ${}_nE_6$  we can also conclude the endowment insurance. To get one-time net premiums for these types of insurances it is necessary to multiply the respective probabilities with factor  $Sv^n$ . If, for example, insured sum of 1 RSD is paid if after  $n$  years at least one of the two persons is still alive, then we will, by taking into account the probability  $p({}_nE_6)$ , get a one-time net premium:

$${}_n E_{xy} = {}_n E_x + {}_n E_y - {}_n E_{xy} = D_{x+n} / D_x + D_{y+n} / D_y - D_{x+n, y+n} / D_{xy}$$

If, for example, insurance is such that, for the payment of the insured sum is necessary that one and only one person is still in life after  $n$  years, then by using probability  $p({}_nE_6)$  we come to the following formula:

$${}_nE^{(1)}_{xy} = {}_nE_x + {}_nE_y - 2{}_nE_{xy}$$

Linked annuity for one pair represents a set of anticipatory annual payments that last to the dismantling of the pair and can be seen as a series of annual endowment insurances. For the annuity in the amount of 1 RSD we would have a series of:

$${}_1E_{xy} = D_{x+1,y+1} / D_{xy}, {}_2E_{xy} = D_{x+2,y+2} / D_{xy}, {}_3E_{xy} = D_{x+3,y+3} / D_{xy}, \dots$$

To get the value of one-time net premiums, which we will mark with  $I_{xy}$  it is necessary to gather this series. So we get

$$I_{xy} = 1 + D_{x+1,y+2} / D_{xy} + D_{x+2,y+2} / D_{xy} + D_{x+3,y+3}$$

This formula is completely analogous to the formula for an immediate anticipative annuity of an  $x$ -year-old. Following the same procedure, it leads us to the equation for a deferred annuity, as well as an immediate temporary annuity. So for the annuity which is deferred for  $m$  years we get:

$${}_mI_{xy} = N_{x+m,y+m} / D_{xy}$$

while for immediate annuities, which last  $n$  years, we get:

$$I_{xy:n} = N_{xy} - N_{x+n,y+n} / D_{xy}$$

These formulas above can be transferred to the insurance of linked annuities for more than two people. Thus, the premium for immediate anticipatory linked annuity  $R=1$ , which is paid until the first death, for example for four people of age combination  $x, y, u$  and  $w$ , is obtained by the following formula:

$$I_{xyuw} = N_{xyuw} / D_{xyuw}$$

A lump-sum net premium for annuity insurance  $R=1$ , which is paid only if the wife is still alive, and the husband was already dead, is marked with  $a_{xy}$ , is reached with the help of probability  $p({}_nE_3) = {}_n p_y - {}_n p_{x/y} = {}_n p_{x/y}$  based on the formula:

$$a_{x/y} = a_x - a_{xy} = N_y / D_y - N_{xy} / D_{xy}$$

This value represents a single premium for a widow's annuity. Since this annuity is not paid in case a woman dies before her husband, it has become customary that such a single premium is called anticipation. The above formula also represents the anticipation on widow's annuity.

If we combine the outliving annuity for the wife and the appropriate one for her husband, then we get double-annuity of outliving. One-time premium for this annuity is obtained with the help of probability  $p({}_nE_6) = {}_n p_x + {}_n p_y - 2{}_n p_{xy} = {}_n p^{(1)}_{xy}$ .

$$a_{xy} = a_{x/y} + a_{y/x} = a_x + a_y - 2a_{xy}$$

The obtained symmetrical formula is valid only if the annuities for both spouses are equal. If, however, if different annuities  $R_x$  and  $R_y$  are insured, we get the following equation:

$$R_y a_{x|y} + R_x a_{y|x} = R_x a_x + R_y a_y - (R_x + R_y) a_{xy}$$

If we add to the outliving annuity another linked annuity, which is then partially or completely transferred to one or both persons, we get linked annuity with single or double, full or partial transition to the surviving person. The most common case is when we add one linked annuity in the amount of  $R_{xy}$  to the outliving annuity mentioned last. The premium for this insurance is:

$$R_{xy}a_{xy} + R_y a_{x/y} + R_x a_{y/x} = R_x a_x + R_y a_y - (R_x + R_y - R_{xy}) a_{xy}$$

This premium relates to insurance in which the annuity is  $R_{xy}$  if both people are in life,  $R_x$  as long as only the husband is alive and  $R_y$  as long as only the wife is alive. For  $R_{xy}=R_x=R_y=R$  we have linked annuity with a dual full transition to the surviving person.

The premium for this insurance is calculated with the help of probability  $p({}_nE_5) = {}_n p_{x+t} \cdot {}_p y - {}_n p_{xy} = r p_{xy}$  and it is:

$$a_{xy} = a_x + a_y - a_{xy}$$

For  $0 < R_x < R_{xy}$  and  $0 < R_y < R_{xy}$  we get linked annuity with a dual partial transition to surviving person. Finally, if  $R_x=0$ , or  $R_y=0$  we get linked annuity with a single pass to the wife, or husband. Calculation of one-time premium for this type of insurance will be shown in the case of an annuity for a double orphan and the linked annuity with a partial transition to three sisters (Isenbert, Munzener, 1994, pp.135).

Temporary anticipatory rent  $R=1$  that the child who is  $z$  years old gets until the age of  $z+k$  if both parents have already died, is called the annuity for a double orphan. Since the last payment is made in the age  $z+k$ , with the anticipatory payment method we must predict the  $k+1$  payment. The probability that after  $n$  years, the annuity will reach the payment is:

$$(1-{}_n p_x)(1-{}_n p_y) {}_n p_z = {}_n p_z - {}_n p_{xz} - {}_n p_{yz} + {}_n p_{xyz}$$

Anticipation to this annuity, which represents a unilateral outliving annuity, is obtained by the following formula:

$$a_{xy/z:k+1} = a_{z:k+1} - a_{xz:k+1} - a_{yz:k+1} + a_{xyz:k+1}$$

The second example refers to the annuity for three sisters, which is paid anticipatory annually in the amount of  $R_3$  if all three sisters are alive, reduces to the  $R_2 < R_3$  when only two are still alive, and which at the end is reduced to  $R_1 < R_2$  when only one sister is left alive. We can use  ${}_n p(R_3)$ ,  ${}_n p(R_2)$  and  ${}_n p(R_1)$  to mark the probabilities that after  $n$  years for payment the annuity  $R_3$ , or  $R_2$ , or  $R_1$  will be in order. These probabilities can be calculated with the multiplication and add paragraph.

$${}_n p(R_3) = {}_n p_{xyz}$$

$${}_n p(R_2) = {}_n p_{xy}(1-{}_n p_z) + {}_n p_{xz}(1-{}_n p_y) + {}_n p_{yz}(1-{}_n p_x) = {}_n p_{xy} + {}_n p_{xz} + {}_n p_{yz} - 3{}_n p_{xyz}$$

$${}_n p(R_1) = {}_n p_x(1-{}_n p_y)(1-{}_n p_z) + {}_n p_y(1-{}_n p_x)(1-{}_n p_z) + {}_n p_z(1-{}_n p_x)(1-{}_n p_y)$$

$$= ({}_n p_x + {}_n p_y + {}_n p_z) - 2({}_n p_{xy} + {}_n p_{yz} + {}_n p_{xz}) + 3{}_n p_{xyz}$$

Based on these probabilities, we get the following final formula of a lump-sum premium for this type of insurance:

$$B = R_1(a_x + a_y + a_z) + (R_2 - 2R_1)(a_{xy} + a_{yz} + a_{xz}) + (R_3 - 3R_2 + 3R_1) a_{xyz}$$

We will consider the case when the insured sum  $S=1$  is paid after  $n+1$  years if the couple breaks up in the  $n+1$  year. This insurance corresponds to the above-mentioned event  ${}_nE_8$ , for which there is a probability  $p({}_nE_8)={}_n p_{xy}^{-n+1} p_{xy}={}_n q_{xy}$ . For the calculation of the lump-sum net premium of this one-year for  $n$  years deferred insurance in case of death on the first death we get the formula:

$${}_n/1A_{xy} = {}_n q_{xy} v^{n+1} = d_{x+n,y+n} / I_{xy} \cdot v^{n+1} = d_{x+n,y+n} v^{x+n+1} / I_{xy} v_x = C_{x+n,y+n} / D_{xy}$$

Immediate assurance that applies until the breakup of the couple on the first death, is composed of a series of these deferred insurances in case of death for  $n=0,1,2,3,\dots$  so a lump-sum net premium for this insurance is obtained in the following way:

$$A_{xy} = {}_0/1A_{xy} + {}_1/1A_{xy} + {}_2/1A_{xy} + \dots = C_{xy} / D_{xy} + C_{x+1,y+1} / D_{xy} + C_{x+2,y+2} / D_{xy} = M_{xy} / N_{xy}$$

If we switch  $M_{xy} = D_{xy} - dN_{xy}$ , we shall obtain the following formula:  $A_{xy} = 1 - da_{xy}$

In the case of temporary insurance to  $n$  years in case of death on the first death, lump-sum net premium would be obtained by the following formula:

$${}_n/1A_{xy} = M_{xy} - M_{x+n,y+n} / D_{xy}$$

If we add to this insurance endowment insurance with a premium  ${}_nE_{xy}$ , we get mixed insurance, for which a lump-sum net premium is obtained according to the formula:

$$A_{xy:n} = {}_n/1A_{xy} + {}_nE_{xy} = 1 - dI_{xy:n}$$

This mixed insurance is often called the: "the mixed insurance on the first life".

When considering insurance on the second death, we will start from the insurance in which the insured sum  $S=1$  is due for payment after  $n+1$  years if the event  ${}_x E_9$  occurs. The corresponding probability of the realization of this event is  $p({}_n E_9)={}_n q_x + {}_n i q_y - r, / q_{xy} = {}_n q_{xy}$ . The lump-sum net premium for  $n$ -years deferred insurance in case of death on the second death, we get according to the following formula:

$${}_n/1A_{xy} = {}_n q_{xy} v^{n+1} = (d_{x+n} / I_x + d_{y+n} / I_y - d_{x+n,y+n} / I_{xy}) v^{n+1} = C_{x+n} / D_x + C_{y+n} / D_y - C_{x+n,y+n} / D_{xy}$$

Summing for  $n=0,1,2,3,\dots$  we get a lump-sum net premium for direct insurance in case of death on the second death:

$$A_{xy} = A_x + A_y - A_{xy} = 1 - dI_{xy}$$

If we add the endowment insurance with a premium  ${}_nE_{xy}$  to this kind of insurance in case of death, we obtain mixed insurance whose single premium is obtained by the following formula:

$$A_{xy:n} = A_{x:n} + A_{y:n} - A_{xy:n}$$

This mixed insurance is called: "mixed insurance on the second life".

### ***DEFERRED ONE-YEAR UNILATERAL INSURANCE IN CASE OF DEATH***

For the  $n$  years deferred one-year unilateral insurance in case of death there is an insured sum  $S=1$  which is due for payment after  $n + 1$  years if the husband dies at the age of  $x + n$ , and the wife either experiences  $x+n+1$  years or also dies in the age of  $x+n$ , but after the husband. This insurance corresponds to the above-mentioned event  ${}_nE_{10}$  for whose realization there is a probability  $p({}_nE_{10})=0,5({}_np_{x-n+1}p_x)({}_np_{y-n+1}p_y)={}_nq_{xy}^1$ . Lump-sum net premium for this insurance shall be calculated according to the formula:

$$\begin{aligned} {}_n|A_{xy} &= {}_nq_{xy}v^{n+1} = 1/2 [v({}_np_{xy} v^n) - ({}_{n+1}p_{xy} v^{n+1}) + p_y v ({}_np_{x,y+1}v^n) - p_x v ({}_np_{x+1,y} v^n)] = \\ &= 1/2 \{ (v)D_{x+n,y+n}/D_{xy} - D_{x+n+1,y+n+1}/D_{xy} + p_y v(D_{x+n,y+n+1}/D_{x,y+1}) - p_x v (D_{x+n+1,y+n}/D_{x+1,y}) \} \end{aligned}$$

### ***INSURANCE OF THE SURVIVED PERSON'S CAPITAL***

To reach the lump-sum net premium of unilateral insurance in case of death on the first death, it is necessary to summarize several of these lump-sum net premiums  ${}_S|A_{xy}, {}_{1/1}A_{xy}, {}_{2/1}A_{xy}, \dots$ . After a simple sorting we come to the final formula that has the following form:

$$A_{xy} = 1/2(v\dot{I}_{xy} - (\dot{I}_{xy}-1) + p_y v\dot{I}_{x,y+1} - p_x v\dot{I}_{x+1,y})$$

This type of insurance is usually called the insurance of the survivor's capital, and is of great importance for insuring widow's capital.

If the insured sum  $S=1$  is paid at the death of the husband, but only if the woman has already died, then we are talking about unilateral insurance in case of death on another death. Since this insurance and insurance in case of death on the first death are complemented to direct life insurance in case of death of the husband, lump-sum net premium for this insurance can be obtained by the formula:

$$A_{xy} = A_x - A_y$$

### ***CONNECTED LIVES INSURANCE***

When calculating the net annual premium for connected lives insurance, it is possible to rely on the above mentioned methods which were developed to insure a life. The formulas for the calculation of annual net premiums on the basis of a lump-sum net premium can be directly transferred to the types of insurance presented here, as well as other types that are not exposed. Hence, it should be noted that the insurance of one couple as a rule is limited to  $n$  years, and that premium payment is in the process until the pair does not break up, and occasionally while at least one person is alive.

Thus, for example, we shall apply the following formula for mixed insurance of first life for the annual premium:

$$P_{xy:n} = A_{xy:n} / a_{xy:n} = (1 / a_{xy:n}) - d$$

Offer of this type of insurance in our country is still not adequately represented.

## ***CONCLUSION***

The aim of the paper is to show the necessity of applying advanced mathematical and statistical methods for calculating tariffs, or price for certain types of life insurances.

Life insurance provides adequate satisfaction of interest, such as: securing additional funds in case of decrease in working capacity, providing financial security for old age, providing funds for children's education, family financial support in the event of death of the breadwinner, and so on. The most important feature and the specificity of life insurance is just that it represents the most perfect form of savings. Saving through insurance is very important for the economic system as a whole as a strong component of economic life expressed through the collective disposal of consumption, improvement of the economy by long-term placements of funds, the impact of the investment policy, etc. Life insurance, through performing the functions of economic protection and accumulation of funds, actually realizes significant social function. We also carried out the analysis of offers concerning life insurance products, primarily individual and family insurance, or insurance of one or more persons, in terms of the possibilities of the application of these insurance products.

There is a number of factors that influence the development of life insurance in developing countries. Among them, the most important one to mention is economic growth and development, the entry of foreign capital, as well as the marketing concept of life insurance and education of the population.

The paper gives a detailed procedure of determining tariffs, or the price of a deferred life-long personal annuity, mixed capital insurance and family insurance. Within the family insurance for two, three or more persons on the basis of the theory of probability, various opportunities are given which may arise in practice and, on that basis, we calculate the tariffs.

The greatest curiosity of life insurance is reflected in unifying functions of insurance and savings. Insurance protection provides economic and social security of the insured person. Savings through life insurance is a purposeful, continuous and long-term. Thanks to the function of savings, the obligation to pay the insured sum in case of realization of the risk (in the case of death, endowment, etc.) stems from life insurance. In order to achieve equivalence of all payments incurred in the form of premiums with liabilities, and the payment of insured sums, interest savings part of the premium during the insurance period is accumulated and forms the so-called mathematical reserve. All of this leads us to a conclusion that today in modern insurance, it is unimaginable to calculate tariffs for life insurance

without the application of statistical and mathematical methods and actuarial mathematics.

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## **THE CONFIDENCE OF USERS IN PUBLIC AND PRIVATE HEALTH FACILITIES**

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### **ABSTRACT**

*Healthcare system in Serbia should secure an adequate level of health for the citizens of Serbia because health is the foundation of rapid political and economic development. The system is pointed towards securing an easy availability of all healthcare services for the entire population. However, pushed by a difficult economic situation, the healthcare system is facing a number of financial problems, organizational problems and the actual functionality of the healthcare. These problems have a significant effect on the quality of healthcare services and they are the reason for the existing gap between expectations which healthcare users have and the real possibilities of the healthcare facilities which caused the drop of confidence in healthcare institutions.*

*In this paper, we have shown the results of the research about the user's opinion on the healthcare quality and the level of trust in state and private institutions. Research results are shown according to the level of education, age, gender, employment and years of work.*

*Results have shown that the majority of users don't have the trust in healthcare institutions because only 25% said that they trust the state institutions and about 38% that they trust the private sector.*

**Key words:** *Healthcare protection, Healthcare services, Level of trust in healthcare institutions.*

**JEL Classification :** I13

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## **INTRODUCTION**

Healthcare system is a system of people, institutions, and resources which all together make the quality of healthcare services according to the needs of the targeted population. There is a variety of healthcare systems throughout the world, with origins and organizational structures as varied as there are countries.

Every country develops its own healthcare system according to its own needs and resources, but in reality, those systems are developing on the same or similar principals of development like basic healthcare and public healthcare institutions.

Responsibility for putting the process of development in action is, in some countries, shared equally through the entire market, while in the rest of the countries, planning of development considers to be the joint action of the government, syndicates, charities, religious organizations and others, with the mutual goal - to create an acceptable healthcare for all the groups. Plans of development for the healthcare system are more evolutionary rather than revolutionary, they are changing all the time, evolving into something better, improving to perfection.

Planning of the healthcare system development is based on the primary goals of the World Health Organization (WHO). All countries, members of the United Nations, are coordinated by this organization. Its goal is the realization of the *universal healthcare plan*. All the people, according to that plan, have the right to any/every healthcare service they have the need for. According to WHO, goals of the health care system are to provide the good health to all citizens, assistance to all the needs of the population and the fair billing. Advance towards those goals is conditioned by the system's attitude and four main functions: supply, resource gathering, finance and managing. Also, we have other data which we use for the healthcare system evaluation like quality, efficiency, accessibility and equality for everyone.

We could say that a good health system has to deliver healthcare services of good quality for everyone, if or when and where it is needed. Types of those services vary from country to country, but nevertheless they all need a huge financial mechanism, well trained and well-paid personnel, a well-maintained infrastructure, and logistics in order to provide a quality healthcare for the population, medicines and modern technology for diagnostics and treatment.

A healthcare system is made out of the healthcare infrastructure which provides a variety of programs and services and secures a healthcare protection to individuals, families and the community.

The purpose of the health system is to maintain and improve the health of the people by providing the best possible modern and traditional medicine, which are at the same time acceptable and appropriate for everyone.

Obligatory packages of healthcare services allude different health services which are secured or covered by obligatory healthcare insurance. Ordinary, those are numerous services on the level of primary healthcare, services in the boundaries of a hospital care, medicament's cost refund and a refund for the use of

medical equipment. Even more, in a significant number of states, the obligatory package of services covers the long-term care, and only in some of them, there is a refund for dental care, preventive health care and even for the use of the alternative medicine (Jovičić et al., 2015).

Determining the right bundle of services which consists of the obligatory health care insurance is the key goal of every health system, and most important political question too, because whether or not the state can achieve to provide the universal health care of the population, depends a great deal out of it, and that is one of the basic goals of the health politics. In other words, successful implementation of the health politics is only possible if the state can provide the necessary, working and financially effective healthcare service to all the citizens. (Jovičić et al., 2015).

### ***HEALTHCARE SYSTEM IN SERBIA***

Serbia has the healthcare system which is directed towards providing the easy availability of all health services for the entire population. Basically, insurance coverage is given to all employed, retired and self-employed persons and farmers which are paying their taxes, including spouses, alimented children and old parents of the insured person. Budget transfers the guarantee that health insurance is covering the unemployed, refugees and internally relocated persons as well as people who are the members of vulnerable groups to the National Health Insurance Fund (NHIF). For the military, civilians employed in the army and pensioners of the armed forces, as well as for their family members, there is a special system of healthcare. National Health Insurance Fund has offered a pretty generous bundle of health services, including special services like treatment abroad and in military hospitals or compensations for all the merchandise bought domestically. Also, it offered some other categories of fund transfers tied with the healthcare like sick leave, compensation for funeral expenses and compensation for the trip to the hospital.

The most important source of finance for the healthcare system of Serbia is National Health Insurance Fund. Taxes are taken from the employers and workers and directly transferred to the NHIF. The Ministry of Health has the direct access to the subaccount of the NHIF. Of course, aside from taxes, as the main source of finance, there is a Pension Fund, funds meant for the unemployed and other. The combination of all those sources of finance is a base for the National Health bank account in Serbia.

Research results (Ernst, Young, 2015) are showing how financially unsustainable the current healthcare system of Serbia is. That is because contributions of the mandatory health insurance of the employed citizens are not sufficient for the operative expenditures of the health sector. The main reasons for the financial unsustainability of the Serbian system on the long run are:

- There is an obvious trend of overmuch expenditure in relative amounts, but in an absolute meaning, expenditures are not sufficient.

- There are great inefficiencies in the use of funds and inventory. The revision of the public procurement process is inefficient and the flaw in the system control has been detected.
- Control functions have not been established, at least not on the scale which is necessary so the system could achieve and keep financial sustainability. Bad financial governorship, especially in the public health institutions.
- Healthcare expenditure planning and budgeting are not in accordance with budget calendar and fiscal strategy.
- The expenditure efficiency, features available for the patients and the value which they get as well as the efficiency in the manner of health gains, are not on the satisfiable level.
- Donations are tracked through the system only by value, and the level of tracking the type of donated equipment and its later usage is very low.

A sustainable health system is only that system which is financially independent. That kind of system would have the complete autonomy in decision making about expenditures, according to a number of annual incomes. Money from that kind of a system would be spent only for its own improving and survival (Cogoljević, Piljan, 2015).

Healthcare system in Serbia is not independent. For a couple of decades, experts are pointing that decentralization is a necessity for its survival, but there were no real moves towards that goal. The use of assets directly from the NHIF is increasing with the years, and that kind of a system is not sustainable (Piljan, Cogoljević, 2015).

The republic of Serbia has begun reforming the healthcare system in 2002, concerning structural and functional matters, including human resources and services organizing. The goal of those reforms was also to rebuild the role of health institutions and the trust people have in it, along with upgrading medical worker's capabilities to handle the larger scope of health issues (Jovičić et al., 2015).

Healthcare system has four pillars which are not equally improved and developed:

- Standards and regulations;
- Resource building such as education and modern technologies;
- Financing;
- Providing services to patients.

Euro Health Consumer Index (EHCI) is making some things possible like: the comparative analysis and the European healthcare systems ranking according to the analysis of the national health systems on the basis of 48 indicators, which include areas like patient rights and information, access to the healthcare, treatment outcomes, scope and areas of service, prevention and the use of medicaments. The index has been introduced in 2006 by the company Health Consumer Powerhouse Ltd (HCP), which was formed in 2004 to research and compare health systems in Europe. Although there are numerous critics (British Medical Journal, Martin McKee and others), in the EHCI's Company they emphasize on: "We know the Euro

Health Consumer Index (EHCI) is today the leading public measurement of how national healthcare systems perform ... We have recently learned that the European Commission after assessing various benchmarks has found the EHCI to be the most accurate and reliable comparison”, (Euro Health Consumer Index, Report 2015, 2016). Since 2006, this comparison of the key values in the scope of health care, from patients and users point of view, has improved the understanding of the European health system, strengthen the patients concerning their rights and helped to remove the weaknesses. EHCI, just like the huge number of studies regarding specific illnesses which were managed by the company Health Consumer Powerhouse Ltd. (HCP), has determined standards which one modern and functional healthcare system can and should accomplish (Euro Health Consumer Index, Report 2015, 2016).

According to the report for 2015, countries are ranked by EHCI in following manner: (Figure1)

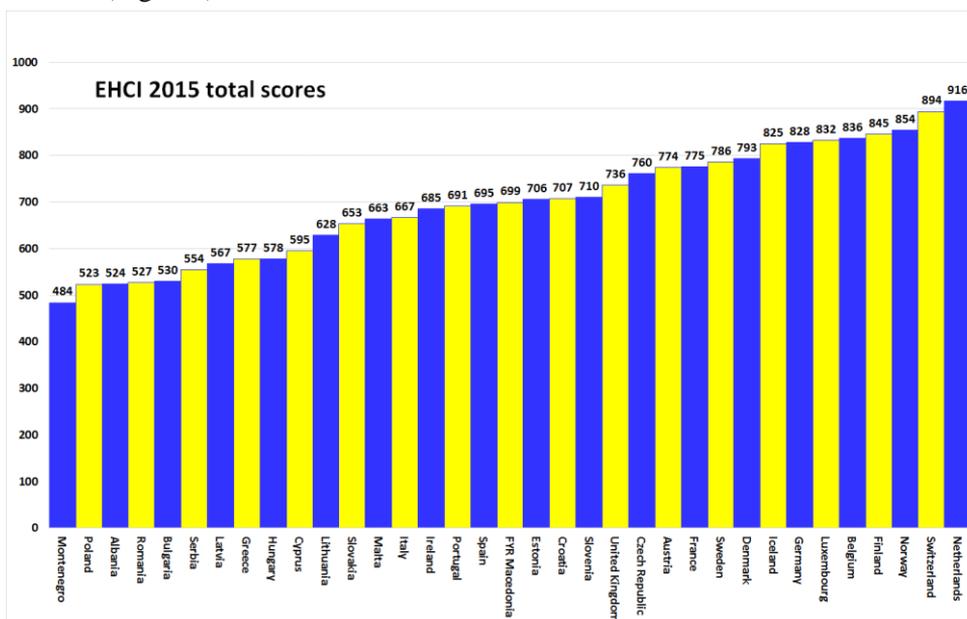


Figure 1: Rank list of the healthcare systems according to EHCI Index  
Source: Euro Health Consumer Index, Report, 2015

In their press release concerning the presentation of the report made by European Health Consumer Index (EHCI) for the year 2015, they emphasized that European healthcare system is improving itself! Research reports referring to our country are especially encouraging: Serbia has improved its rating on the list of European healthcare systems and shifted itself from 33rd spot which she had in 2014 to the 30th spot in this year report. The improvement of 81 points, they made, since Serbia has recorded that much, on the scale of maximal 1000 points, is presenting the biggest advancement which was made by any country in Europe.

This kind of success is mostly the result of a lowered mortality rate of the newborns and a better access to the health care services.

In their paper (Janković, 2011), Janković is emanating that the results made by the control of the indicators EHCI should be used as guidelines for the further and necessary reforms. In chart 1, there are results of the reports and position of the health care system of Serbia in most significant elements of the system.

Sustainability of the financial distribution, based on the pay-as-you-go principle is disputable (Janković, 2011). That is the case for pension and health insurance. There is no country, with insignificant regard to the degree of its development, that wasn't spared from demographic changes and the growth of expenses in a healthcare. Health systems based on a social insurance, with a great number of insurance companies which are organizations, independent from health care providers, are called Bismarck's systems. There are also systems, where financing and service providing are secured, in a scope of one integrated organization (Beveridge's systems). EHCI generally considers that countries which have the Bismarck's health care model, like Netherlands, Belgium, Germany, and France, are providing better healthcare protection.

*Table 1: The position of the Health care system of Serbia in the most significant elements of the system*

| Sub-discipline                    | Netherlands | Switzerland | Norway | Finland | Belgium | Luxembourg | Germany | Iceland | Denmark | Sweden | France | Austria | Czech Republic | United Kingdom | Slovenia | Croatia | Estonia | Portugal | Ireland | Italy | Malta | Slovakia | Lithuania | Cyprus | Hungary | Greece | Latvia | Serbia | Bulgaria | Romania | Albania | Poland | Montenegro |     |     |
|-----------------------------------|-------------|-------------|--------|---------|---------|------------|---------|---------|---------|--------|--------|---------|----------------|----------------|----------|---------|---------|----------|---------|-------|-------|----------|-----------|--------|---------|--------|--------|--------|----------|---------|---------|--------|------------|-----|-----|
| 1. Patient rights and information | 146         | 133         | 146    | 129     | 117     | 121        | 125     | 133     | 133     | 125    | 113    | 121     | 96             | 129            | 121      | 129     | 129     | 142      | 104     | 96    | 96    | 96       | 113       | 125    | 88      | 88     | 75     | 104    | 104      | 75      | 96      | 88     | 79         | 75  |     |
| 2. Accessibility                  | 200         | 225         | 138    | 150     | 225     | 200        | 188     | 163     | 138     | 100    | 188    | 188     | 213            | 100            | 125      | 175     | 163     | 213      | 113     | 113   | 100   | 138      | 163       | 163    | 175     | 125    | 125    | 113    | 138      | 150     | 150     | 163    | 100        | 113 |     |
| 3. Outcomes                       | 240         | 240         | 240    | 229     | 198     | 219        | 229     | 240     | 219     | 229    | 208    | 188     | 177            | 188            | 208      | 156     | 188     | 104      | 198     | 188   | 208   | 188      | 135       | 135    | 177     | 125    | 167    | 146    | 125      | 125     | 104     | 125    | 146        | 135 |     |
| 4. Range and reach of services    | 144         | 119         | 138    | 144     | 131     | 125        | 94      | 125     | 138     | 144    | 106    | 119     | 125            | 131            | 106      | 119     | 106     | 81       | 113     | 94    | 94    | 88       | 125       | 94     | 75      | 81     | 94     | 69     | 75       | 69      | 56      | 63     | 50         | 63  | 56  |
| 5. Prevention                     | 101         | 101         | 113    | 107     | 89      | 101        | 107     | 107     | 89      | 107    | 89     | 83      | 83             | 107            | 83       | 65      | 54      | 107      | 101     | 89    | 101   | 101      | 101       | 77     | 65      | 71     | 89     | 89     | 77       | 71      | 71      | 71     | 65         | 83  | 71  |
| 6. Pharmaceuticals                | 86          | 76          | 81     | 86      | 76      | 67         | 86      | 57      | 76      | 81     | 71     | 76      | 67             | 81             | 67       | 62      | 67      | 57       | 67      | 62    | 86    | 57       | 48        | 71     | 52      | 52     | 57     | 52     | 48       | 52      | 43      | 33     | 52         | 33  |     |
| Total Score                       | 916         | 894         | 854    | 845     | 836     | 832        | 828     | 825     | 793     | 786    | 775    | 774     | 766            | 736            | 710      | 707     | 706     | 704      | 695     | 691   | 685   | 667      | 663       | 653    | 628     | 595    | 578    | 577    | 567      | 554     | 530     | 527    | 524        | 523 | 484 |
| Rank                              | 1           | 2           | 3      | 4       | 5       | 6          | 7       | 8       | 9       | 10     | 11     | 12      | 13             | 14             | 15       | 16      | 17      | 18       | 19      | 20    | 21    | 22       | 23        | 24     | 25      | 26     | 27     | 28     | 29       | 30      | 31      | 32     | 33         | 34  | 35  |

*Source: Euro Health Consumer Index, Report 2015*

One more very important reform, in a health department, was the introduction of fiscal receipts in every private health care institution on June 1st. 2009. That enabled better financial overseeing of private and public sector, and better insight in service providing. That brought the gray economy in the health care are to the bare minimum and brought gains to the health care users and health care employs. Income control actually began all the reforms and the development of the health care.

The flow of the money in a health care is defined by "The National Health Account" and the gathering of all sorts of data about financing and expenses from the funds made for health on the national level. The National Health Account presents the accounting scope for the standardized reporting about the expenditure and the health system's financing, which measures total - public, private and donated health care expenses of the countries residents. National Health Account connects all three subjects, in other words, sources of financing with health

institutions and their users. That is how you control the flow of money between sources, and they are:

- Private sector with private insurance
- Public sector, where insurance is financed by the taxpayer's money through the republic's budget, province's, city and county, as well as budgets of the Ministry of Defense, Culture, Education, Energy and the Republic Fund for the Health Insurance.
- Sector of other financial subjects, presented to the foreign donors.

As much as the country is rich, big or its improvement is heading upwards, its health care system cannot be ideal. "The perfect health care system is like a perfect health — a noble aspiration but one that is impossible to attain." (Bodenheimer, 2002). That is also shown by the research, taken by the "Guardian" in January, this year. The research shows what amount of money, which "rich" country spends on health and what kind of a system those countries actually have. That research included: Russia, Germany, Spain, USA, China, Italy, Israel, Japan and others.

For comparing purposes, we should take Great Britain and Spain on one side, and China and Russia on the other. Great Britain is ranked as the first by the quality of the health care services and it the health care is free. All the services from general practitioners visits to surgical services or chemotherapies are free. And yet again, some 11% of the general population chooses the private sector. It is assumed that the main cause for that is the difficulty of making appointments. Sweden is ranked as third and it has a very interesting system. It is not completely free. Health insurance users pay the maximal amount of 115 Euros by the month, and everything else above that is paid by the State. In both cases, State is investing large amounts of money into the health care improvements, education of the employees and their salaries, in order to additionally stimulate the quality of their work.

Russia and China are the examples of systems, struggling to stay alive. China is investing a large part of its budget into the health care development, but it has too many citizens. It cannot catch-up with more advanced countries, even with its wealth. Examinations are not free but are very cheap. Only 27 cents are needed to come to the general practitioner, and night in the hospital is about 10 Euros. Only problems are poorly paid doctors and very expensive medicines. Treatments of more dangerous illnesses can bring a common family to its bankruptcy. Similar conditions are in Russia. The State is not investing enough money into Health, salaries are low, but it has an enough doctors and health care is free for everybody. Because of small salaries, doctors can be easily bribed, which brings everything to the edge of chaos.

We need to learn from all four systems. In Serbia, there are like in any other country, two parallel health systems: Private and Public (State). The private subsystem is funded by the owners of those institutions or clinics, so it is developing relatively fine, but it's too expensive for the common citizen. Public Health Institutions are practically abandoned by State. It hasn't been invested in infrastructure and objects since the 1970's. Doctor's visits and some other services are not entirely free but the insured has to pay a part of the service in some type of participation. The most important thing may be, the salary, employees in the public

health sector have. Because of low salaries, quality of service is very low and because of that they gladly accept any freelance job they can find in the private sector. Additionally, young doctors and the rest of health care employees, are seeking some better luck in other, more developed countries. All those facts are bringing us to the downfall of Serbian health care system.

Total expenditure on health measures the final consumption of health goods and services plus capital investment in health care infrastructure. It includes both public and private spending on personal health care and collective health services (public health and prevention programs and administration). Excluded are health-related expenditures such as training, research, and environmental health. The data is presented as a proportion of gross domestic product (GDP). To compare health care expenditures across time, it is deflated by a national price index and converted to US dollars using purchasing power parity (PPP) exchange rates. Healthcare spends per capita in PPP dollars have been taken from the WHO HfA database (September 2015; latest available numbers, almost the entire 2013) as illustrated in the graph below:

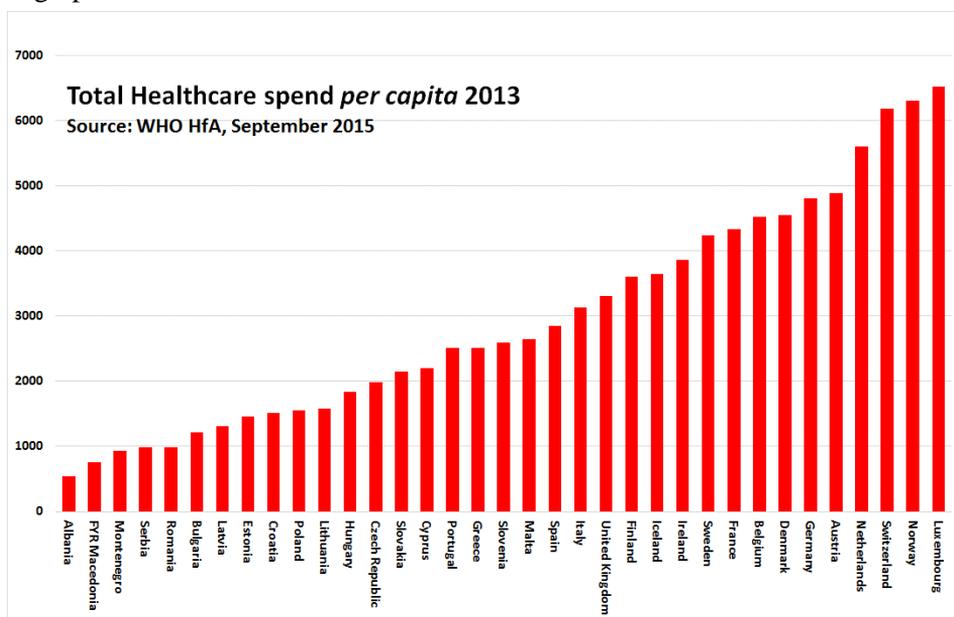


Figure 2: Expenses of the health care system per capita in the countries of Europe  
Source: Euro Health Consumer Index, Report 2015

Investments in the health care are rising with the income per capita. (Šljivić, Vojteški-Klijenak, 2015). On the figure 3a, we have a national income per capita movements curves, and on 3b health care expenses per capita in Serbia and surrounding countries.

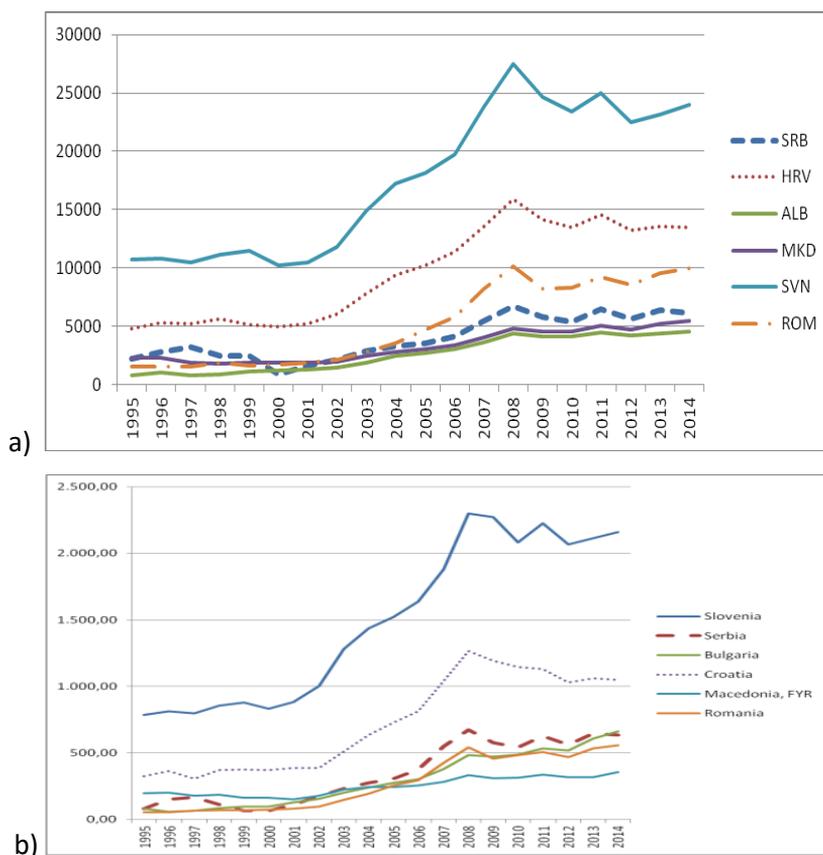


Figure 3: National Income and Health care expenses movement per capita in Serbia and surrounding countries.

Source: Author's picture on the bases of world bank data

### ***THE RESEARCH: CONSUMER'S CONFIDENCE IN THE EXISTING SYSTEM OF HEALTH INSURANCE***

All this implies a question, what do people think about the existing health insurance system, after the reforms? Do they think that additional reforms are needed? The main goal of this research is to make an evaluation about what citizens of Serbia think about the existing obligatory health insurance and their trust in private insurance, as an evaluation of their opinion about the need for additional system reforms.

**H<sub>0</sub>: Citizens are not satisfied with the existing condition of the health care insurance system and they think that further reforms are needed.**

Regardless of whether the results of the study confirm or reject the null hypothesis, the research will look for answers for questions like: Are there any significant differences in attitudes (1) between the female and male population, (2)

between residents of different age (3) between employed and unemployed residents and (4) between residents judging by their level of education.

In that sense, the following hypothesis are set:

**H<sub>1</sub>: There are no significant differences in statements of the null hypothesis between women and men.**

**H<sub>2</sub>: There are no significant differences in the statements of the null hypothesis between residents of different ages**

**H<sub>3</sub>: There are no significant differences in the statements of the null hypothesis between employees and unemployed residents**

**H<sub>4</sub>: There are no significant differences in the statements of the null hypothesis between the population by level of education.**

### ***EMPIRICAL RESEARCH***

The survey was conducted by the method of theoretical analysis and empirical, so-called. research method. Empirical research was conducted in three phases:

1. Collecting the data by interviewing examinees in writing;
2. Organizing and grouping of data and data processing methods of statistical analysis (descriptive statistics, ANOVA, Tukey "post hoc" test) and
3. The interpretation of the obtained data.

Analysis of variance (ANOVA) was used as an analytical model for testing the significance of differences of variability, as well as to analyze their mutual influence, making it impossible to estimate otherwise. Tukey "post hoc" test is used to determine the critical difference with which compare the absolute value of the difference between the middle values. Greater differences than the critical difference mean that the difference between those two middle values is significant.

For data collection, I used the questionnaire in the form of Likert scale for measuring attitudes, specially designed for a given study. The questionnaire had nine questions. Likert scale is defined by five levels of gradation: (1) cannot agree, (2) partially agree or mostly disagree, (3) neither agree nor disagree - I do not have a clear opinion, (4) mostly agree I (5) strongly agree.

The results that were obtained by this method were compared with the findings obtained by the method of theoretical analysis and to facilitate the execution of complete conclusions and recommendations.

### ***RESEARCH ANALYSIS***

To process the data obtained by the interview, I used SPSS software for statistical analysis of data. First, the Cronbach's Alfa-coefficient value was determined in order to determine the level of internal consistency of the data for

mandatory health insurance and private insurance. The results show that the reliability of the research instruments was satisfactory, because the high value of Cronbach Alfa-coefficient = 0.876 for mandatory and Cronbach Alfa-coefficient = 0.845 for private health insurance (Tables 2 and 3) have the meaning of high levels of internal consistency of all the columns.

*Table 2: Cronbach Alfa-coefficient for mandatory health insurance*

| <b>Reliability Statistics</b> |  |            |
|-------------------------------|--|------------|
| Cronbach's Alpha              | Cronbach's Alpha Based on Standardized Items | N of Items |
| ,875                          | ,876   | 10         |

*Table 3: Cronbach Alpha - coefficient for private health insurance*

| <b>Reliability Statistics</b> |  |            |
|-------------------------------|--|------------|
| Cronbach's Alpha              | Cronbach's Alpha Based on Standardized Items | N of Items |
| ,824                          | ,845   | 14         |

Data of mean values, standard deviations and the estimated value of the mathematical expectation for a 95% confidence interval for the total sample are shown in a Table 4.

*Table 4: Values of arithmetical means, standard deviations and assess of the values of mathematical expectation for a 95% confidence interval for the total sample*

| <b>Descriptives</b>   |                              |     |        |             |            |                                  |             |
|---|------------------------------|-----|--------|-------------|------------|----------------------------------|-------------|
| Questions   | Gender<br>1-male<br>2-female | N   | Mean   | Std.<br>Dev | Std. Error | 95% Confidence Interval for Mean |             |
|   |                              |     |        |             |            | Lower Bound                      | Upper Bound |
| Compulsory health insurance is providing me the quality services (OZO1) | Male                         | 48  | 2,5417 | 1,254       | ,1810      | 2,1775                           | 2,9058      |
|   | Female                       | 61  | 2,6885 | 1,103       | ,1413      | 2,4059                           | 2,9712      |
|   | Total                        | 109 | 2,6239 | 1,168       | ,1119      | 2,4019                           | 2,8458      |
| I am satisfied with the treatment I get from the staff of state health  | Male                         | 48  | 2,5000 | 1,110       | ,1603      | 2,1774                           | 2,8226      |
|   | Female                       | 61  | 2,6557 | ,9980       | ,1277      | 2,4001                           | 2,9114      |

|  |        |     |        |        |       |        |        |
|--|--------|-----|--------|--------|-------|--------|--------|
| institutions (OZO2)  | Total  | 109 | 2,5872 | 1,047  | ,1003 | 2,3883 | 2,7860 |
| I am pleased with hygiene and tidiness of public facilities (OZO3)                         | Male   | 48  | 2,4167 | 1,068  | ,1542 | 2,1064 | 2,7269 |
|  | Female | 61  | 2,3115 | ,9405  | ,1204 | 2,0706 | 2,5524 |
|  | Total  | 109 | 2,3578 | ,9955  | ,0953 | 2,1688 | 2,5468 |
| Waiting in state health institutions is very short (OZO4)                                  | Male   | 48  | 1,7708 | ,9048  | ,1306 | 1,5081 | 2,0336 |
|  | Female | 61  | 1,7377 | ,9983  | ,1278 | 1,4820 | 1,9934 |
|  | Total  | 109 | 1,7523 | ,9540  | ,0913 | 1,5712 | 1,9334 |
| I am satisfied with the quality of service of doctors in public health institutions (OZO5) | Male   | 48  | 2,6458 | 1,061  | ,1532 | 2,3375 | 2,9541 |
|  | Female | 61  | 2,8689 | 1,007  | ,1290 | 2,6107 | 3,1270 |
|  | Total  | 109 | 2,7706 | 1,033  | ,0989 | 2,5745 | 2,9668 |
| I am using state health insitutions (OZO6)   | Male   | 48  | 3,8125 | 1,2489 | ,1802 | 3,4498 | 4,1752 |
|  | Female | 61  | 3,6230 | 1,171  | ,1499 | 3,3229 | 3,9230 |
|  | Total  | 109 | 3,7064 | 1,204  | ,1153 | 3,4778 | 3,9350 |
| I am satisfied with the quality of services in public hospitals (OZO7)                     | Male   | 48  | 2,5000 | 1,031  | ,1488 | 2,2005 | 2,7995 |
|  | Female | 61  | 2,5246 | ,9934  | ,1271 | 2,2702 | 2,7790 |
|  | Total  | 109 | 2,5138 | 1,005  | ,0963 | 2,3228 | 2,7047 |
| I am satisfied with the quality of services in public clinics dentist (OZO8)               | Male   | 48  | 2,0625 | ,9764  | ,1409 | 1,7790 | 2,3460 |
|  | Female | 61  | 2,5082 | 1,219  | ,1561 | 2,1958 | 2,8206 |
|  | Total  | 109 | 2,3119 | 1,136  | ,1088 | 2,0962 | 2,5276 |
| I have confidence in the mandatory health insurance (OZO9)                                 | Male   | 48  | 2,6458 | 1,101  | ,1589 | 2,3261 | 2,9655 |
|  | Female | 61  | 2,8197 | 1,072  | ,1373 | 2,5450 | 3,0944 |
|  | Total  | 109 | 2,7431 | 1,083  | ,1037 | 2,5374 | 2,9488 |
| There is no corruption, favoritism and connections in public facilities (OZO10)            | Male   | 48  | 1,7083 | ,9666  | ,1395 | 1,4276 | 1,9890 |
|  | Female | 61  | 1,5738 | ,6942  | ,0888 | 1,3960 | 1,7516 |
|  | Total  | 109 | 1,6330 | ,8239  | ,0789 | 1,4766 | 1,7895 |

Over 63% of the surveyed citizens was treated in state health institutions, only 17% regularly or occasionally in private institutions, and even 19% have no definite position on it (Figure 4a). Even 49.5% of citizens believe that the quality of health services is not satisfactory, 27.5% do not have a certain opinion and only 23% believe that the quality of service is satisfactory (Figure 4b). Over 86% of interviewed people held that the state health institutions have corruption, while only 2.7% believe that there is no corruption, favoritism and connections (Figure 4c). Big problem is that more than 77% emphasizes on long waiting for service in state health institutions (Figure 4d).

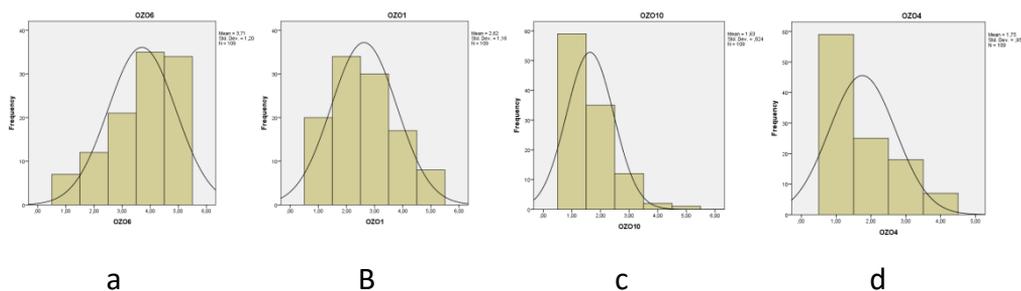


Figure 4: Histograms of the response frequency on questions from the area of compulsory insurance

Differences in opinions between the male and female population, by age, employment and unemployment and by level of education, were tested using ANOVA methods.

Test results showed that the difference of opinion between the female and male population, exists only in the question "I am satisfied with the quality of services in public clinics dentist" - OZO8 (Sig. = 0.041). On other matters there are no significant differences of attitudes/ opinions (Table 5).

Table 5: Results of ANOVA test for male and female gender (compulsory insurance)

|      |                | ANOVA          |     |             |       |      |
|------|----------------|----------------|-----|-------------|-------|------|
|      |                | Sum of Squares | df  | Mean Square | F     | Sig. |
| OZO1 | Between Groups | ,579           | 1   | ,579        | ,422  | ,517 |
|      | Within Groups  | 146,999        | 107 | 1,374       |       |      |
|      | Total          | 147,578        | 108 |             |       |      |
| OZO2 | Between Groups | ,652           | 1   | ,652        | ,592  | ,443 |
|      | Within Groups  | 117,770        | 107 | 1,101       |       |      |
|      | Total          | 118,422        | 108 |             |       |      |
| OZO3 | Between Groups | ,297           | 1   | ,297        | ,298  | ,586 |
|      | Within Groups  | 106,749        | 107 | ,998        |       |      |
|      | Total          | 107,046        | 108 |             |       |      |
| OZO4 | Between Groups | ,029           | 1   | ,029        | ,032  | ,858 |
|      | Within Groups  | 98,282         | 107 | ,919        |       |      |
|      | Total          | 98,312         | 108 |             |       |      |
| OZO5 | Between Groups | 1,336          | 1   | 1,336       | 1,255 | ,265 |
|      | Within Groups  | 113,930        | 107 | 1,065       |       |      |
|      | Total          | 115,266        | 108 |             |       |      |
| OZO6 | Between Groups | ,965           | 1   | ,965        | ,664  | ,417 |
|      | Within Groups  | 155,640        | 107 | 1,455       |       |      |
|      | Total          | 156,606        | 108 |             |       |      |
| OZO7 | Between Groups | ,016           | 1   | ,016        | ,016  | ,900 |
|      | Within Groups  | 109,213        | 107 | 1,021       |       |      |
|      | Total          | 109,229        | 108 |             |       |      |
| OZO8 | Between Groups | 5,336          | 1   | 5,336       | 4,259 | ,041 |

|       |                |         |     |       |      |      |
|-------|----------------|---------|-----|-------|------|------|
|       | Within Groups  | 134,058 | 107 | 1,253 |      |      |
|       | Total          | 139,394 | 108 |       |      |      |
| OZO9  | Between Groups | ,812    | 1   | ,812  | ,689 | ,408 |
|       | Within Groups  | 125,996 | 107 | 1,178 |      |      |
|       | Total          | 126,807 | 108 |       |      |      |
| OZO10 | Between Groups | ,486    | 1   | ,486  | ,715 | ,400 |
|       | Within Groups  | 72,835  | 107 | ,681  |      |      |
|       | Total          | 73,321  | 108 |       |      |      |

Significant differences in criteria "age" were established on the issues "I am satisfied with the quality of services in public hospitals (OZO7)" Sig = 0.062 and "I am satisfied with the quality of services the dentist in state offices (OZO8)," Sig = 0.027.

According to the criteria of "employed, unemployed" there are significant differences in opinions on issues "I am satisfied with the quality of services in public hospitals (OZO7)," Sig = 0.049 and "I am satisfied with the quality of dentist's services in the state offices (OZO8)", Sig = 0.022.

According to the level of educational, there are significant differences in opinions on issues "Compulsory health insurance is providing me the quality services (OZO1)," Sig = 0.052 and "Waiting in state health institutions is very short (OZO4)," Sig = 0.016.

Due to the lack of space ANOVA and Tukey's test results are not shown.

The results of the descriptive analysis of the answers for **private health insurance** are shown in Table 6.

Table 6: Results of a descriptive analysis of the response of private health insurance

| Descriptives   |        |     |        |                |            |                                  |             |
|--|--------|-----|--------|----------------|------------|----------------------------------|-------------|
| Question   |        | N   | Mean   | Std. Deviation | Std. Error | 95% Confidence Interval for Mean |             |
|  |        |     |        |                |            | Lower Bound                      | Upper Bound |
| I have money and I got insured in a private insurance company (PO1)        | Male   | 48  | 2,1875 | 1,23178        | ,17779     | 1,8298                           | 2,5452      |
|  | Female | 61  | 1,8689 | 1,17580        | ,15055     | 1,5677                           | 2,1700      |
|  | Total  | 109 | 2,0092 | 1,20566        | ,11548     | 1,7803                           | 2,2381      |
| I trust private insurance companies (PO2)                                  | Male   | 48  | 3,1458 | ,96733         | ,13962     | 2,8650                           | 3,4267      |
|  | Female | 61  | 3,1639 | 1,00300        | ,12842     | 2,9071                           | 3,4208      |
|  | Total  | 109 | 3,1560 | ,98295         | ,09415     | 2,9693                           | 3,3426      |
| By investing in private insurance I am safer (PO3)                         | Male   | 48  | 3,2708 | 1,04657        | ,15106     | 2,9669                           | 3,5747      |
|  | Female | 61  | 3,3115 | ,82747         | ,10595     | 3,0996                           | 3,5234      |
|  | Total  | 109 | 3,2936 | ,92599         | ,08869     | 3,1178                           | 3,4694      |
| I go to the private dentist (PO4)  | Male   | 48  | 3,8125 | 1,40903        | ,20338     | 3,4034                           | 4,2216      |
|  | Female | 61  | 3,9836 | 1,32277        | ,16936     | 3,6448                           | 4,3224      |
|  | Total  | 109 | 3,9083 | 1,35770        | ,13004     | 3,6505                           | 4,1660      |
| I do most of my health treatments at in a private health institution (PO5) | Male   | 48  | 2,5625 | 1,23609        | ,17841     | 2,2036                           | 2,9214      |
|  | Female | 61  | 2,7541 | 1,28654        | ,16472     | 2,4246                           | 3,0836      |
|  | Total  | 109 | 2,6697 | 1,26238        | ,12091     | 2,4301                           | 2,9094      |

|  |        |     |        |         |        |        |        |
|--|--------|-----|--------|---------|--------|--------|--------|
| Treatment in private hospital is safer (PO6)   | Male   | 48  | 3,2292 | ,99444  | ,14354 | 2,9404 | 3,5179 |
|  | Female | 61  | 3,3443 | ,98124  | ,12564 | 3,0930 | 3,5956 |
|  | Total  | 109 | 3,2936 | ,98416  | ,09427 | 3,1067 | 3,4804 |
| Waiting in private hospitals is short and pleasant (PO7)   | Male   | 48  | 3,7917 | 1,07106 | ,15459 | 3,4807 | 4,1027 |
|  | Female | 61  | 4,0000 | 1,04881 | ,13429 | 3,7314 | 4,2686 |
|  | Total  | 109 | 3,9083 | 1,05884 | ,10142 | 3,7072 | 4,1093 |
| I believe that after the expiry of private insurance all parts of the contract will be honored (PO8) | Male   | 48  | 3,2292 | 1,11545 | ,16100 | 2,9053 | 3,5531 |
|  | Female | 61  | 3,3770 | ,83992  | ,10754 | 3,1619 | 3,5922 |
|  | Total  | 109 | 3,3119 | ,96894  | ,09281 | 3,1280 | 3,4959 |
| I trust private hospitals more (PO9)   | Male   | 48  | 3,2083 | 1,00970 | ,14574 | 2,9151 | 3,5015 |
|  | Female | 61  | 3,4754 | 1,02643 | ,13142 | 3,2125 | 3,7383 |
|  | Total  | 109 | 3,3578 | 1,02309 | ,09799 | 3,1636 | 3,5520 |
| I don't have money for a private doctor (PO10)   | Male   | 48  | 3,3542 | 1,22890 | ,17738 | 2,9973 | 3,7110 |
|  | Female | 61  | 3,1967 | 1,32690 | ,16989 | 2,8569 | 3,5366 |
|  | Total  | 109 | 3,2661 | 1,28122 | ,12272 | 3,0228 | 3,5093 |
| Patient care in private hospitals is better than in public ones (PO11)                               | Male   | 48  | 3,9167 | 1,04847 | ,15133 | 3,6122 | 4,2211 |
|  | Female | 61  | 4,0820 | ,88119  | ,11283 | 3,8563 | 4,3077 |
|  | Total  | 109 | 4,0092 | ,95738  | ,09170 | 3,8274 | 4,1909 |
| Treatment in private hospitals is very expensive (PO12)  | Male   | 48  | 3,6458 | 1,08156 | ,15611 | 3,3318 | 3,9599 |
|  | Female | 61  | 4,1148 | ,93271  | ,11942 | 3,8759 | 4,3536 |
|  | Total  | 109 | 3,9083 | 1,02326 | ,09801 | 3,7140 | 4,1025 |
| I am satisfied with the hygiene and tidiness of private hospitals (PO13)                             | Male   | 48  | 4,0625 | ,90873  | ,13116 | 3,7986 | 4,3264 |
|  | Female | 61  | 4,3770 | ,66242  | ,08481 | 4,2074 | 4,5467 |
|  | Total  | 109 | 4,2385 | ,79231  | ,07589 | 4,0881 | 4,3890 |
| I am satisfied with the quality of service in private health care institutions (PO14)                | Male   | 48  | 3,7500 | 1,00000 | ,14434 | 3,4596 | 4,0404 |
|  | Female | 61  | 4,0984 | ,76822  | ,09836 | 3,9016 | 4,2951 |
|  | Total  | 109 | 3,9450 | ,89064  | ,08531 | 3,7759 | 4,1140 |

About 14% of respondents agreed with the question, "I have money and I got insured in a private insurance company (PO1)", while others don't have financial requirements for such insurance (Figure 5a), although they mostly don't have a certain opinion because they have no experience (43%) or trust (38.5%) in the private Health insurance (Figure 5b).

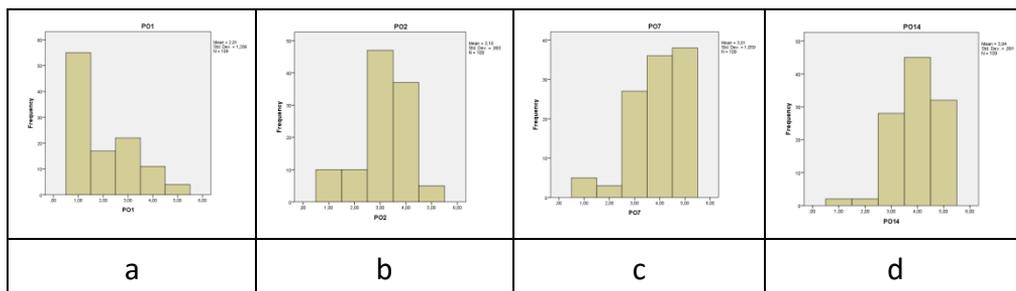


Figure 5: Histograms Frequency response to questions from the area of private insurance

That "Waiting in private hospitals is short and pleasant (PO7)" is considered by about 68%, but it's not by only 7.3% of interviewed people (Figure 5c). A large percentage (70.7%) of interviewed were satisfied with the quality of services of physicians in private health institutions (PO14), as shown in the figure (Figure 5d).

Significant differences in attitudes were tested by ANOVA. The test results for male and female gender are shown in Table 7. It can be seen that there are significant differences on issues "Treatment in private hospitals is expensive (PO12)," Sig = 0.017, "I am satisfied with the hygiene and tidiness of private hospitals" (PO13), Sig = 0,039, and "I am satisfied with the quality of service in private health care institutions" (PO14), Sig = 0.042.

Table 7: Results of ANOVA test for male and female gender (private insurance)

| ANOVA |                |                |     |             |       |      |
|-------|----------------|----------------|-----|-------------|-------|------|
|       |                | Sum of Squares | df  | Mean Square | F     | Sig. |
| PO1   | Between Groups | 2,728          | 1   | 2,728       | 1,892 | ,172 |
|       | Within Groups  | 154,263        | 107 | 1,442       |       |      |
|       | Total          | 156,991        | 108 |             |       |      |
| PO2   | Between Groups | ,009           | 1   | ,009        | ,009  | ,924 |
|       | Within Groups  | 104,340        | 107 | ,975        |       |      |
|       | Total          | 104,349        | 108 |             |       |      |
| PO3   | Between Groups | ,044           | 1   | ,044        | ,051  | ,821 |
|       | Within Groups  | 92,561         | 107 | ,865        |       |      |
|       | Total          | 92,606         | 108 |             |       |      |
| PO4   | Between Groups | ,786           | 1   | ,786        | ,424  | ,516 |
|       | Within Groups  | 198,296        | 107 | 1,853       |       |      |
|       | Total          | 199,083        | 108 |             |       |      |
| PO5   | Between Groups | ,986           | 1   | ,986        | ,617  | ,434 |
|       | Within Groups  | 171,124        | 107 | 1,599       |       |      |
|       | Total          | 172,110        | 108 |             |       |      |
| PO6   | Between Groups | ,356           | 1   | ,356        | ,365  | ,547 |
|       | Within Groups  | 104,250        | 107 | ,974        |       |      |
|       | Total          | 104,606        | 108 |             |       |      |
| PO7   | Between Groups | 1,166          | 1   | 1,166       | 1,040 | ,310 |

|      |                |         |     |       |       |      |
|------|----------------|---------|-----|-------|-------|------|
|      | Within Groups  | 119,917 | 107 | 1,121 |       |      |
|      | Total          | 121,083 | 108 |       |       |      |
| PO8  | Between Groups | ,587    | 1   | ,587  | ,624  | ,431 |
|      | Within Groups  | 100,807 | 107 | ,942  |       |      |
|      | Total          | 101,394 | 108 |       |       |      |
| PO9  | Between Groups | 1,916   | 1   | 1,916 | 1,845 | ,177 |
|      | Within Groups  | 111,130 | 107 | 1,039 |       |      |
|      | Total          | 113,046 | 108 |       |       |      |
| PO10 | Between Groups | ,666    | 1   | ,666  | ,403  | ,527 |
|      | Within Groups  | 176,619 | 107 | 1,651 |       |      |
|      | Total          | 177,284 | 108 |       |       |      |
| PO11 | Between Groups | ,734    | 1   | ,734  | ,799  | ,373 |
|      | Within Groups  | 98,257  | 107 | ,918  |       |      |
|      | Total          | 98,991  | 108 |       |       |      |
| PO12 | Between Groups | 5,907   | 1   | 5,907 | 5,897 | ,017 |
|      | Within Groups  | 107,176 | 107 | 1,002 |       |      |
|      | Total          | 113,083 | 108 |       |       |      |
| PO13 | Between Groups | 2,658   | 1   | 2,658 | 4,366 | ,039 |
|      | Within Groups  | 65,140  | 107 | ,609  |       |      |
|      | Total          | 67,798  | 108 |       |       |      |
| PO14 | Between Groups | 3,260   | 1   | 3,260 | 4,233 | ,042 |
|      | Within Groups  | 82,410  | 107 | ,770  |       |      |
|      | Total          | 85,670  | 108 |       |       |      |

According to the criteria of "age" there are significant differences on issues, "I have money and I got insured in a private insurance company (PO1)", Sig = 0,001 "I go to the private dentist (PO4)", Sig = 0.015, "I do most of my health treatments at in a private health institution (PO5)", Sig = 0.023 and "Waiting in private clinics is short and pleasant (PO7)", Sig = 0.022. Due to the lack of space in the table, the ANOVA test results are not displayed, but only table for Tukey test for the issue PO1 from which you can see the age of respondents, between which there are differences in opinions on this issue (Table 8).

Table 8: Tukey test for the question "I have money and I got insured in a private insurance company (PO1)"

### PO1

#### Tukey HSD

| Age     | N  | Subset for alpha = 0.05 |        |
|---------|----|-------------------------|--------|
|         |    | 1                       | 2      |
| Over 60 | 4  | 1,0000                  |        |
| 18 -30  | 38 | 1,5526                  | 1,5526 |
| 41-50   | 18 | 1,8333                  | 1,8333 |
| 31-40   | 32 |                         | 2,4688 |
| 51-60   | 17 |                         | 2,5882 |
| Sig.    |    | ,379                    | ,174   |

Means for groups in homogeneous subsets are displayed.

- a. Uses Harmonic Mean Sample Size = 11,850.
- b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

According to the criteria "employability, unemployment" there are significant differences in opinions on issues "I go to the private dentist (PO4)", Sig = 0.000, "I do most of my health treatments in a private health institution (PO5)", Sig = 0.000, "I believe that after the expiry of private insurance all parts of the contract will be honored (PO8)", Sig = 0,013, "I don't have money for a private doctor (PO10)", Sig = 0.056, and "Patient care in private hospitals is better than in public ones (PO11)", Sig = 0.013.

According to the level of educational there are significant differences in attitudes on issues, "I have money and I got insured in a private insurance company (PO1)" Sig = 0,001 "I go to a private dentist (PO 4)", Sig = 0.048 "I don't have money for private doctors ( PO10), Sig = 0.005.

## ***CONCLUSION***

The study confirms the null hypothesis that residents are not satisfied with the current state of the health insurance system and believe that further reforms are necessary. Even 49.5% of citizens believe that the quality of health services is not satisfactory, 27.5% do not have a certain attitude and only 23% believe that the quality of service is satisfactory. Over 86% of interviewed people thinks that the state health institutions have some form of corruption and only 2.7% think that there is no corruption, favoritism, and connections. As a big problem, more than 77% emphasizes long waiting for service in state health institutions.

It has been shown that there are significant differences in certain important matters by all considered criteria: population between male and female, between the inhabitants of different ages, between the employed and unemployed population and among the population by level of education.

The research was conducted in the city of Niš, on a relatively small sample. This sample has indicated that the majority of the population is for the continuation of health system's reforms. We propose to continue with the research in all relevant cities in Serbia on a larger sample with the adequate structure of the sample by gender, age, and level of education. This would create conditions for a reliable assessment of the level of customer satisfaction with the quality of health insurance in Serbia.

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# **ACTUARIAL ASSESSMENT OF TECHNICAL RESERVES IN NON-LIFE INSURANCE**

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## **ABSTRACT**

*The objective of this paper is to describe from actuarial perspective the calculation methodology and the way of placing funds of technical reserves in non-life insurance. Reserves in insurance are there to ensure normal functioning of insurance companies. Two basic types of reserves are guarantee and technical funds.*

*Survival of insurance companies in a turbulent environment imposes the need for placing surplus of resources. The range of engaging technical reserves is determined by the gravity of risk and by the profit we want to make.*

*Proper and actuarially adequate assessment of reserves is a precondition for ensuring stable and safe business activities of insurers and it will enable them to settle their obligations to the insured in time.*

*Reserves are used to cover negative deviations of greater damages from smaller premium payments, and are formed from the excess of collected premiums in comparison to the paid amounts of damages on the basis of compensation in certain years.*

*Each investment is more or less subject to risk.*

*This paper deals with the researching and proving of the significance of three key factors concerning the guarantee of insurer's solvency: technical reserves assessment, investment of resources covered by the appropriate technical reserves and ensuring the adequate solvency margin.*

*The result of this research was the description and determination of the dependency of financial stability and successful business activities of insurance companies on the actuarially adequate assessment of insurance reserves...*

**Key words:** *Technical Reserves, Reserve Assessment, Insurance Companies, Investments, Risk, Risk Management.*

**JEL Classification:** *I13*

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## ***INTRODUCTION***

This paper deals with technical reserves in non-life insurance, their formation and placement, in the context of their increasingly big significance due to the consequences of catastrophic damages and changes in the field of insurance which have started at the beginning of this millennium.

The objective of this paper is to, in an actuarially adequate way, explain the calculation methodology and the way of placing funds of technical reserves in non-life insurance by comparing the regulations of our country with the EU directives.

To be able to perform their basic function of compensation, insurance companies must form funds which they will use to ensure the fulfillment of their obligations to policyholders. These funds are called reserves.

Reserves which insurance companies have come from different sources. The main source is the initial safety fund provided during the establishment and its minimum is prescribed by law. During their business activities, insurance companies charge premiums and form technical reserves out of premiums calculated and charged in such a way. In addition to forming part of the reserves out of the collected premium, if the insurance company is covering its costs and making a profit, it will direct a part of its fund towards the increase of reserves.

Insurance companies conduct business on the financial market by placing reserve funds. The investment process has to be in compliance with the structure and maturities of insurance liabilities.

Insurance companies are considered financial intermediaries for several reasons. The first one is that they get resources for further investments from their clients. Many people are using insurance companies as institutions in which they invest the greatest portion of their savings. The second reason why insurance companies are considered financial intermediaries is that these institutions place the invested funds of their clients into a series of investments which bring money. These institutions also approve of large commercial mortgage loans and they invest funds on stock markets and bond markets. So, they are taking money from one sector and giving it to another (Piljan et al., pp. 100).

This paper will show the actuarial approach to technical reserves in non-life insurance by comparing results, advantages and disadvantages of different calculation methods and by comparing their regulations to the EU directives. Special attention will be paid to the significance of solvency margin and self-insured retention of insurers.

In this paper, we assumed that actuarially adequate assessment and formation of the necessary level of reserves is the precondition for insurance companies to be able to perform their basic function, and that is compensation for damages.

Survival of insurance companies in the conditions of a turbulent environment imposes the need for placing surplus of resources. The range of investing resources

of technical reserves is determined by the gravity of the risk and by the profit you want to make.

Defining the right strategy for investment and risk management is the condition for ensuring financial stability and an adequate management of portfolio investments.

### ***THE SIGNIFICANCE OF RESERVES IN INSURANCE***

The basic function and purpose of insurance is to protect policyholders via compensation. The emergence of insurance is related to the fundamental people's need to protect their lives and property from various dangers. When the insured event happens, the insurance companies protect their policyholders via compensation for the occurred damage in case of non-life insurance or by paying out the insured amount of money in case of life insurance. Financial compensation from reserve funds ensures greater safety for policyholders (for individuals and business entities), hence the formation of reserves is in the function of covering basic liabilities of insurance companies.

Insurance companies of non-life insurance maintain the right level of reserve funds and in that way ensure that their liabilities are covered in every given moment. Reserve funds represent the capacity insurers own and the greater they are, the greater the ability to take over and cover the risk. Considering the fact that big risks make bigger profit, the interest of insurance companies for taking over these risks is growing.

Insurance companies have to be very careful when taking over certain risks and they have to be ready for events of a larger number of statistically unpredictable damages, such as mass and catastrophic damages which can endanger their business activities. These damages are a characteristic of non-life insurance, especially at the beginning of this century.

If companies want to cover their future liabilities to policyholders, they need to carefully and in accordance with their possibilities take over the risks in insurance. Insurance companies have to focus their business on predictions and on the assessments of probabilities for the realization of risks based on mathematical and statistical methods, i.e. on scientific bases. Probability theory represents mathematical and statistical base of modern insurance and thanks to its application in insurance, accidents are no longer considered predestined and unpredictable, but rather phenomena which can be predicted thanks to certain regularities (Kočović, 2004, pp. 44).

Reserves are funds in the function of future liability payments, i.e. damages to policyholders. In insurance, premiums are usually paid in advance, and policy period extends into the future, and this is the reason why insurance companies have to have certain reserves so as to ensure that premiums collected in advance are available for the payment of future damages. Reserves ensure liquidity of coverage of current liabilities, especially concerning non-life insurance companies which have obvious problems with adjusting incomes and expenses due to the unpredictability of the sum and time of damage.

By using reserves we ensure a dynamic balance because the process of funds inflow from insurance premiums and the process of paying off compensations for insured events in a certain accounting period will not be in balance, i.e. total payments won't be equal to total pay offs. In cases when total payments are larger than total pay offs, reserve fund increases. Vice versa, when total payments are less than total pay offs, reserve capacity is reduced.

Reserves are there to cover negative deviations of bigger damages from smaller premium payments, and are formed from a surplus of collected premiums in comparison to the paid amounts of claims on the basis of fees in certain years. It ensures global and financial balance of payments and pay offs, inflow and placement of funds of certain maturities and purpose. Total reserve funds of non-life insurance companies are in the function of mathematical expectations concerning compensations for the occurred insured events. That is why it is necessary for insurance companies to properly form and purposefully and profitably place reserve funds. Need for efficient management, i.e. for investments of available reserves lies in unfavorable movements of damages in the last few years, due to terrorist attacks, catastrophic floods and fires, seasons of hurricanes and typhoons which have led to dramatic changes in the insurance and reinsurance markets. By making additional profit, through investing reserve funds on the financial market, insurance companies are enabled to reduce their technical loss, i.e. to eliminate potential inconsistency of premiums and claims. In that way, we get a basis for making a profit which couldn't be ensured in regular business operations due to high expenses of carrying out insurance and big claims which surpassed premiums.

We can conclude that reserves, in regards to their amount, should correspond to the current value of future liabilities to policyholders. A cautious insurance company will form its reserves at the level higher than the current value of liabilities, so as to ensure safe business, i.e. solvency. This is why a defined minimum amount of guarantee reserves for insurance companies is prescribed by the law.

Ensuring solvency through reserves is extremely important because, for premiums paid in advance at the beginning of policy period, insurance companies accept the obligation of paying out compensation during the entire period. If it should happen that an insurance company cannot pay the damages, uncovered risks in the remaining policy period would occur.

“Solvency represent the most important indicator of safety and stability of insurance companies, hence of their attractiveness to potential policyholders. We can say that a company is solvent if its assets are bigger than its debts. Solvency or payment ability is its ability to meet its current obligations in time of their arrival by using the available funds” (Kočović,2003, pp. 68).

Insolvency of insurance companies would create a series of social and economic problems. Social problems would be reflected in the increase of unemployment, smaller tax incomes etc., if an insurance company would stop working. Economic problems would manifest through the withdrawal of large amount of money from the market, because insurance companies are big institutional investors. Unsettled obligations to policyholders would be passed on

to other insurance companies, which would significantly disturb the stability and development of insurance market.

Policyholders could be put in a bad financial situation or bankruptcy because of the inability of their insurance company to compensate for the damage, especially if we are talking about bigger and more catastrophic damages. Even if another insurance company takes over the compensation obligations, that process can last for years, especially in cases of larger insurance companies. That is why policyholders are also interested in their solvency.

We can come to a conclusion that preventing one insurance company's insolvency is a general interest. State, as a regulator of insurance market and through its legal mechanisms, has to force insurance companies to maintain their solvency at the necessary level (Rejda, 1997, pp. 66). One of the possible ways is to prescribe the minimum level of reserves that every company has to ensure. Demand for maximum protection from insolvency, which is extremely strict, is hampering insurance companies to place their product which would be acceptable to policyholders because it becomes expensive. That is why the objective is to ensure conditions in which an insurer can successfully conduct business and in which danger from insolvency is reduced to a minimum.

Reserves are important for maintaining stability of the premium system in insurance. If there were no reserves, premium rates and premiums would constantly and annually change.

Assessment of the size of reserves in insurance and the effectiveness of investing those reserves are very important questions for insurance companies and they are set as basic assignments for the actuarial service, i.e. actuaries (Kočović, 2003, pp.1).

An important question is the amount of reserves that an insurance company should have in order to cover its liabilities. The simplest answer would be that they should be at the level which can cover additional damages in relation to the collected risk premium.

The amount, formation type and use of reserves depend on the gravity of the risk, type of insurance, market development, etc. In case an insurance company did ensure its portfolio without great risks, then it can, according to its tariff system which is based on long-term statistical analyses, the law on big numbers and actuarial science, without any problems take over such a homogenous portfolio into insurance.

If an insurance company should come into a situation to insure a big risk, it has to establish in what way the taking of that risk will influence the level of danger of, until then, homogenous portfolio, as well as what the financial possibilities of an insurance company to take over that risk are, concerning the amount of reserves it owns (Newton et al., 2000, pp. 88).

In order to ensure the protection of interests of policyholders and third parties, or timely settlement of claims, it is not enough just to establish an adequate level of technical reserves, but also their investment in a way that ensures the fulfillment of obligations undertaken in their entirety and in the present time as well as in the future. In order to be able to meet its obligations, the company is obliged to place

its funds in a way that pays attention to the risk profile and risk tolerance limits (qualitative and quantitative), by using its strategies and policies for the management of funds placement risk (Piljan, Cogoljević, 2015, pp. 446).

### ***TYPES OF RESERVES IN NON-LIFE INSURANCE***

Reserves represent the base of stability and safety for every insurance company. They enable the performance of the primary function of insurance through protecting policyholders in case of risk realization, but they are at the same time a significant source of funds for investment activities of insurers. Reserves of insurance companies consist of:

1. Guarantee reserves;
2. Technical reserves.

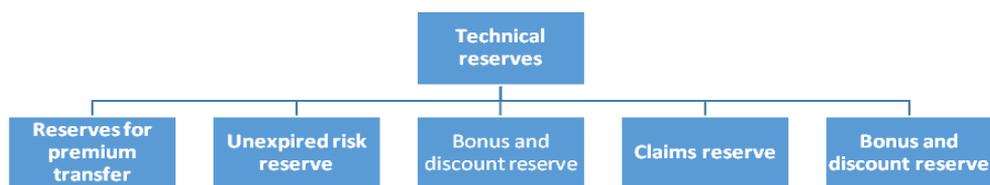
Guarantee reserves are in the function of time risk equalization in the long run, while technical reserves have the same role, but in a shorter period, mostly during one accounting period.

Guarantee reserves are funds and resources of a long-term character, which enable insurers to carry out current and present obligations. This reserve is an indicator of company's solvency and it covers long-term financial sources, i.e. long-term capital. It has to be owned by each and every insurance company, because it is necessary for doing business as a guarantor for liability compensation on the basis of the insurance policy.

The amount of minimum guarantee reserve is stipulated by Article no. 124 of the Law on Insurance of the Republic of Serbia, so its total amount cannot be less than the minimally required seed capital, i.e. guarantee reserve must always be bigger than the calculated solvency margin. According to the Law on Insurance, solvency margin of any insurance company corresponds to total assets reduced for intangible assets, prepayments and deferred expenses, loss, liabilities (including the mathematical reserve of life insurance) and transferable positions (unearned premiums and provisional claims). Solvency margin is only for the first business year calculated by applying premium basis.

Guarantee funds consist of primary and supplementary capital, reduced for deductible items.

In insurance companies of non-life insurance, technical reserves represent short-term sources of funds, considering the short-term character of the insurance they come from. Balance of long-term (guarantee funds, funds of the initial safety fund) and short-term sources (technical reserves) is important from the aspect of permanent safety and insurer's solvency.



*Figure 1: Structure of technical reserves in insurance*

Assessment of technical reserves is very important for every insurance company. Legislator usually defines the procedures of establishing technical reserves so that they represent statistically calculated liabilities insurance companies have to their policyholders. Their estimate is calculated by actuarial methods based on the appropriate statistical data and in accordance with the adopted act of the business policy of the insurance company. In the practice of certain countries, different mathematical and statistical actuarial methods and procedures of forming technical reserves are used.

The assessment has to be carried out in actuarially adequate way because it serves the purpose of a timely risk settlement. They must not be underestimated because in that way net value of insurance company is overestimated.

In transition countries, such as ours, there is a problem with estimating technical reserves primarily because of the lack of appropriate statistical data, large monetary discrepancies and actuarial non-development. On the other hand, in EU countries they carried out a harmonization of regulations and methods for calculating technical reserves which cannot be altered from year to year.

### ***UNEARNED PREMIUM CALCULATION METHOD***

Unearned premiums are formed in the amount of the part of calculated total premium which serves for the coverage of liabilities from the insurance contract, which refers to the next accounting period.

Basis for the calculation of unearned premium of non-life insurance is the calculated gross premium in the current accounting period.

Some authors are advocating the idea that we should calculate unearned premiums by taking technical (risk) premiums for their basis. They find the stronghold for such attitude in the fact that costs of carrying out insurance (commission for conclusion of insurance) are the biggest at the beginning of insurance period, so those costs are not equally allocated during the insurance period. Likewise, if we calculate unearned premium from gross premium, solvency margin will be reduced because reserves of unearned premiums (technical reserves) are a deduction item when calculating solvency margin (Zakon o osiguranju, Article no. 120)

There are more methods for calculating unearned premium depending on the number of insurance contracts in the portfolio, risk allocation in time and such, so we have (Andrijašević, Petranović, 1999, pp. 247):

1. Individual methods;
2. Arbitrary methods;
3. Proportional methods.

### **INDIVIDUAL CALCULATION METHOD**

**Insurance with an equal allocation of risk in time**, where the amount of insurance coverage doesn't change during the insurance period, gross unearned premium for each individual contract is calculated in the following way:

$$\mathbf{BPP = BP * \frac{d}{dOB}}$$

BPP – gross unearned premium,

BP – gross premium charged for the entire insurance period,

D – number of days after the calculation period until the end of insurance coverage period,

dOB – total number of insured period days

**Insurance with an unequal allocation of risk in time**, where the amount of insurance coverage changes in time, taking into consideration coverage changes during the insurance period and the duration of insurance period. This type of contract most often occurs in insurances of buildings under construction and installation, film industry, insurance of contractual liability of construction or installation contractors and loan insurance. (Šujelić i dr., 2006, pp. 98)

$$\mathbf{BPP = BP * \frac{d(2dOB - d + 2p_1)}{dOB + 2p_1 dOB}}$$

Expression  $p_1$  in the previous formula represents a shift that is equal to:

$$\mathbf{p_1 = \frac{dOB * OS_p}{OS_k - OS_p}}$$

$OS_p$  – amount of insurance coverage at the moment when the insurance period started,

$OS_k$  – amount of insurance coverage at the end of insurance period

Second case, if we can assume that the amount of insurance coverage is decreasing linearly during the insurance period, calculation of gross unearned premium for each individual contract on insurance is performed in the following way:

$$\mathbf{BPP = BP * \frac{d * (d + 2p_2)}{dOB + 2p_2 dOB}}$$

Wherein:

$$p2 = \frac{dOB * OSk}{OSp - OSk}$$

OSp – amount of insurance coverage at the moment insurance period started,

OSk – amount of insurance coverage at the end of insurance period.

### ***ARBITRARY CALCULATION METHOD***

This method is also called semi-annual method for calculating unearned premiums. It is often used in practice even though it is not technically perfect. We use arbitrary method to determine the rate of unearned premium for a specific type of insurance, multiplying it with the basis for unearned premium calculations.

It is the simplest one because it is based on the assumption of equal allocation of premiums during the year, i.e. liability expiration for all policies is in the middle of reporting period, usually calendar year. Unearned premiums are usually calculated at a rate which is 50% of the total calculated annual premium or half of calculated annual premium. This type of unearned premium calculation is usually used in auto liability insurance.

### ***PROPORTIONAL CALCULATION METHOD***

In this group we have methods that give approximately the same results as individual methods for calculating unearned premiums.

### ***MONTHLY CALCULATION METHOD***

This method is also called the 1/24<sup>th</sup> method, and it starts from the assumption that the date of liability expiration from the contract on insurance is in the middle of the month. It is more reliable than the previous one because it takes into consideration different inflow of premiums by months, even during a certain month. We calculate unearned premiums in the following way:

$$BPP = \sum K_M * BP_M$$

BPP – gross unearned premium,

$K_M$  – calculation coefficient.

$BP_M$  – gross premium charged in month m for insurances that last after the accounting period.

Calculations are carried out on the basis of coefficients from the following table:

Table 1: Calculation days according to the 1/24<sup>th</sup> method

| METOD 1/24 - MJESEČNI METOD |           |         |          |           |       |          |           |       |          |           |       |
|-----------------------------|-----------|---------|----------|-----------|-------|----------|-----------|-------|----------|-----------|-------|
| 31.03.=t                    |           |         | 30.06.=t |           |       | 30.09.=t |           |       | 31.12.=t |           |       |
| god.                        | mjesec    | koef.   | god      | mjesec    | koef. | god      | mjesec    | koef. | god      | mjesec    | koef. |
| P                           | April     | 1/24    | Pr       | Jul       | 1/24  | Pre      | Oktobar   | 1/24  |          | Januar    | 1/24  |
| r                           | Maj       | 3/24    | et       | Avgust    | 3/24  | tho      | Novembar  | 3/24  |          | Februar   | 3/24  |
| e                           | Jun       | 5/24    | ho       | Septembar | 5/24  | dna      | Decembar  | 5/24  |          | Mart      | 5/24  |
| t                           | Jul       | 7/24    | d        | Oktobar   | 7/24  |          | Januar    | 7/24  | T        | April     | 7/24  |
| h                           | Avgust    | 9/24    | na       | Novembar  | 9/24  | T        | Februar   | 9/24  | e        | Maj       | 9/24  |
| o                           | Septembar | 11/24   |          | Decembar  | 11/24 | e        | Mart      | 11/24 | k        | Jun       | 11/24 |
| d                           | Oktobar   | 13/24   | T        | Januar    | 13/24 | k        | April     | 13/24 | u        | Jul       | 13/24 |
| n                           | Novembar  | 15/24   | e        | Februar   | 15/24 | u        | Maj       | 15/24 | ć        | Avgust    | 15/24 |
| a                           | Decembar  | 17/24   | k        | Mart      | 17/24 | ć        | Jun       | 17/24 | a        | Septembar | 17/24 |
|                             | Tek       | Januar  | u        | April     | 19/24 | a        | Jul       | 19/24 |          | Oktobar   | 19/24 |
|                             | uča       | Februar | ć        | Maj       | 21/24 |          | Avgust    | 21/24 |          | Novembar  | 21/24 |
|                             |           | Mart    | a        | Jun       | 23/24 |          | Septembar | 23/24 |          | Decembar  | 23/24 |

We divide the entire year into 24 periods, and according to the insurance expiration date we calculate what part, i.e. how many 1/24s of the premium is transferred into the next accounting period (Andrijašević, Petranović, 1999, pp. 247).

Total unearned premium is calculated as the sum of unearned premiums by policies in a certain month. We would get the same result if the calculations for unearned premiums would be as follows:

$$BPP = \frac{1}{2m} \sum_{i=1}^m B P_i * (2i - 1)$$

BPP – gross unearned premium,

B P<sub>t</sub> – gross premium charged for month *i* for that type of insurance,

*m* – number of months in the accounting period,

*i* – number of months after the end of accounting period until the end of insurance coverage period

Based on this method for the calculations of unearned premium, where the date of liability expiration from the insurance contract is primarily in the middle of the month, we can get two derived variants of calculations depending on whether the date of liability expiration is at the beginning or at the end of the month. If it is at the beginning of the month, we calculate unearned premium in the following way:

$$BPP = \frac{1}{m} \sum_{i=1}^m B P_i * (i - 1)$$

BPP – gross unearned premium,

BPi – gross premium charged for month  $i$  for that type of insurance,

$m$  – number of months in the accounting period,

$i$  – number of months after the accounting period until the end of insurance coverage period

If the date of liability expiration from the contract on insurance is at the end of the month, the calculation is as follows:

$$BPP = \frac{1}{m} \sum_{i=1}^m BPi * i)$$

Symbols have the same meaning as in the previous two formulas.

### ***DAILY CALCULATION METHOD***

This method is also called the 1/730th method and it is more accurate than the previous two methods, hence the calculated amount of the reserve is closer to the real amount. The concept of unearned premiums tells that premiums are transferred from one year into another, so number 730 is actually the number of days for two years. Unearned premium is calculated according to the date of premium payment. In that way we get the fraction numerator, so we use the fraction we got to multiply it with the premium and we add the results we got. Unearned premium calculations by using the daily method is performed according to the following formula:

$$BPP = \frac{1}{2d} \sum_{i=1}^d BPi * (2i - 1))$$

BPi – gross premium charged for day  $i$  for that type of insurance,

$d$  – total number of days in the accounting period,

$i$  – number of days after the accounting period until the end of insurance coverage period

### ***QUARTILE CALCULATION METHOD***

Alongside these two proportional methods, we also use a third one, the so-called 1/8<sup>th</sup> method. This method is based on the quartile calculation of premiums (Bugmann, 2000, pp. 14), with an assumption that the middle of the quartile is the average beginning of insurance and it involves less work than the 1/24<sup>th</sup> method. Calculations of gross unearned premium are performed in the following way:

$$BPP = \frac{1}{2k} \sum_{i=1}^k BPi * (2i - 1))$$

$B P_i$  – gross premium charged for trimester  $i$  (quartile) for that type of insurance,

$k$  – the number of quartiles in the accounting period,

$i$  – the number of quartiles after the end of accounting period until the end of insurance coverage period

### ***CLAIMS PROVISION CALCULATIONS***

If the concept of risk implies the possibility of having negative deviations from the expected and planned, than the concept of damage implies the realization of those negative deviations.

The purpose of insurance is that an insurer, based on concluded contract on insurance and premium paid by a policyholder, is obliged to pay for the damage (in form of compensation) if the risk should happen, i.e. if the insured event happen. Therefore, an insurer has to have enough funds to meet their liabilities, but also to form appropriate reservations for claims, both for those which happened and were reported and for those which happened and weren't reported in the current period.

From the actuarial aspect, division of total damages is extremely important:

- liquidated claims,
- provisional claims.

Liquidated damages are those for which there is no basis for further payment on grounds of insurer's liability and as such they don't go into reserves for reported damages. Provisional claims are formed at the expense of expenses in the form of unsettled liabilities of the company on the basis of unsettled claims and as:

- incurred and reported claims,
- incurred and not reported claims (Daykan et al.,1993, pp. 292)

For every insurance company and actuarial analysis it is very important to notice the time difference from the moment the damage occurred until the moment damage was liquidated, i.e. defining the year in which the damage occurred and the year in which the damage was liquidated. For all other incurred, and unsettled claims (reported and unreported), we carry out reservation of claims (Institute of Actuaries,1991, pp. 4).

Often in practice do we come across a mismatch between the year of occurrence and the year of claim liquidation, and this is why we make a reservation for, until the accounting day, incurred and unsettled claims. When assessing damages, it is necessary to distinguish between three key factors:

- the year of damage occurrence, marked by  $x$ ,
- the end of accounting period, i.e. time  $t$ ,
- the period of damage development  $d$

Developmental cumulative stream of total damages occurred in year  $x$  can be graphically presented.

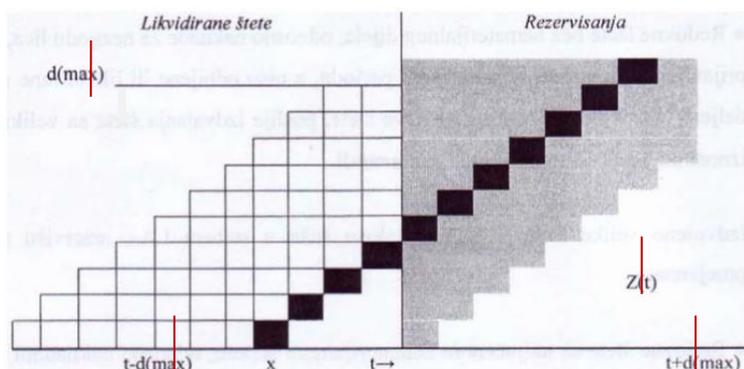


Figure 2: Representation of liquidated and reserved damages which occurred in year  $x$

As the chart shows, in the interval  $x$  ( $x, t$ ) we showed all liquidated damages occurred in year  $x$  until some accounting period  $t$ , in the period of development  $d$ , so we get:

$$\mathbf{L(x,t) = L(t-d,t)}$$

$L(x, t)$  – total sum of liquidated damages in time  $t$ ,

$x$  – the year of damage occurrence,

$t$  – the end of accounting period.

Reserved damages, occurred in year  $x$ , are presented in the right shaded part of the chart in the interval  $(t, t + d)$  and are marked with:

$$\mathbf{R(t,t+d)}$$

$R(t, t + d)$  – total reservation for damages occurred in year  $x$ ,

$t$  – the end of accounting period,

$d$  – the end of damage development.

Hence, total damages occurred in year  $x$  correspond to the sum of liquidated damages occurred in year  $x$  and reservations for damages in that year:

$$\mathbf{Z(t) = L(x,t) + R(t,t+d)}$$

## ***RESERVATION OF INCURRED AND REPORTED CLAIMS***

These reservations are determined for the following categories:

- regular damages without non-material part, i.e. compensations for the accidents, which occurred and were reported in the current accounting period, and were not rejected or liquidated in that period. These damages, after separating them from damages with large individual amounts, are reserved according to the lump-sum payment (arbitrary) method.
- Separated large damages are reserved by individual assessments.

There are more methods of assessment and reserving for incurred reported damages and those are:

1. Individual assessment;
2. Arbitrary assessment.

### ***RESERVATION OF INCURRED AND UNREPORTED CLAIMS***

It is usual in insurance that some damages which occur in one year for various reasons end up not reported and paid out in the year of occurrence, but rather in some later period which can be longer than 10 years. This is why for incurred, and until the end of next accounting period, not reported claims we make a reservation of money amounts, the so-called reservation of damages for incurred and not reported claims (IBNR) (Bornhuetter, Ferguson, 1972, pp. 3-9)

Actuarial methods for calculating these reserves have been in development for the last three decades (Clarke et al., 1975, pp. 1-5). There are several methods for calculating reservations for these damages and those are:

- CHAIN LADDER method;
- Method of the expected quota of damage, i.e. “the IBNR method”;
- Arbitrary assessment method.

“**Chain ladder**” method monitors the progress of the development of damage, so it is necessary to consider time differences from the moment damage occurred and the following years when those damages were paid.

Calculation procedures according to this method are performed in such a way that we first form tables based on the data from the book of claims. We take data about claims paid in the last 5 to 10 years.

In the triangle of damages, we have information about: the year in which the damage occurred (period of damage occurrence) and the year in which the payment was carried out (period of development). Such a display of the movements of damages and their payments enables a horizontal analysis by years of damage occurrence and vertical analysis by years of development. We monitor movements of damages by years in which they occur (table rows), and trends of payments by years of damage development (table columns).

**Method of the expected quota of damages** – assessment of the amounts of reserved damages for the incurred and not reported claims according to this method is performed and calculated based on three-year old accounting and statistical data on settled and reserved (incurred and reported, but not settled) claims. These data are taken from the books of liquidated and reserved claims which, beside the data on the amount of claims, have to have data on the requested date of occurrence and date of reporting the damage.

Amount of reserved claims for the incurred and until the end of accounting period not reported claims is calculated by multiplying the sum of all settled claims

in self-insured retention during the current business year and on the day of calculating reserved (incurred reported and unsettled) claims in self-insured retention, not including annuity claims, with the coefficient for the calculation of incurred and not reported claims.

**Arbitrary method** – reservation for incurred and not reported claims is presented as a product of the expected number of subsequently reported claims and the expected average amount of those claims.

### ***CALCULATION OF RESERVES FOR RISK EQUALIZATION***

Reserves for risk equalization, i.e. reserves for changes of claims are formed on the basis of standard deviations of annual valid technical results from the average valid technical result in the observed period, for every type of non-life insurance which an insurance company deals with in the observed period. They serve to mitigate or eliminate consequences of claims fluctuations.

### ***RESERVES FOR RISK EQUALIZATION IN SERBIA***

In Serbia, the calculation of these reserves is carried out on the basis of the Decision on detailed criteria and manner of calculating risk equalization reserves adopted by the Governor of the National Bank of Serbia.

The basis for calculating risk equalization reserves consists of technical premium in self-insured retention generated in the current year and the standard deviation of annual valid technical results from the average valid technical result.

Insurance company is obliged to form reserves for risk equalization if the following conditions are fulfilled:

1. if the standard deviation is at least 0.05 or
2. if the annual valid technical result in that period for j type of insurance was at least one time bigger than 1. This result is a quotient of valid claims in self-insured retention and valid technical premium in self-insured retention.

An average valid technical result and standard deviation are obtained by applying the following formulas:

$$x_j = \frac{1}{n} \sum_{i=1}^n x_{ij}$$

For the arithmetic mean:

$$s_{(x_{ij})_j} = \sqrt{\frac{1}{n-1} \sum_{i=1}^n (x_{ij} - \bar{x}_j)^2}$$

For standard deviation:

Wherein:

- $j$  – type of insurance ( $j = 1, 2, 3, \dots n$ ),
- $n$  – the observed period ( $i = 1, 2, 3, \dots n$ ), which includes the current year,
- $X_j$  – the average valid technical result in  $j$  type of insurance in the observed period,
- $X_{ij}$  – the annual valid technical result in  $j$  type of insurance in year  $i$ ,
- $s(x_{ij})_j$  – standard deviation based on the sample.

The upper limit of risk equalization reserve, i.e. claim fluctuation is obtained by multiplying the amount of technical premium in self-insured retention from the current period with the multiple of standard deviation which depends on the type of insurance.

Insurance company is obliged to increase risk equalization reserves in the amount of 3.5% of the calculated upper limit, until it reaches that limit. Insurance company is obliged to increase reserves if the annual valid technical result in the current year is less than the average technical result and vice versa, it will reduce reserves if the annual valid technical result in the current year is greater than average.

If the difference between the average valid technical result and the annual valid technical result is greater than 0.07 then we increase reserves by multiplying technical premium in self-insured retention by 0.07.

If neither of these two conditions for forming risk equalization reserves is fulfilled, insurance company reduces these reserves by 1/5 at the end of every year in the following five years, including the year in which they established that conditions weren't fulfilled.

### ***RISK EQUALIZATION RESERVES IN THE REGION***

This calculation of reserves which is applied in the countries from our region (Croatia, Bosnia and Herzegovina) is different from the calculations in the Republic of Serbia. Namely, insurance company will form its equalization reserves, i.e. changes of claims in those types of insurances in which the change is emphasized, and when:

1. quota of damage ( $K\check{S}_i = M\check{S}/MP$ ) when  $i = 1, \dots n$  is at least one above 100.
2. standard deviation for the observed period is at least 5.

Quota of damage is the quotient of the valid claim, net from reinsurance and valid premium, net from reinsurance multiplied by 100.

Unlike calculations according to the Decision of the National Bank of Serbia, valid claims and valid premium are equal

$$M\check{S} = L\check{S} - \check{S}R - OR - TO\check{S} + / - PR\check{S} + / - PRB + / - POOR - PKOR$$

Wherein:

- MŠ – valid damage, net from reinsurance in the observed period,  
 LŠ – liquidated damages in the observed period,  
 ŠR – share of reinsurers in damages,  
 OR – achieved collected regress  
 TROŠ – expenses of evaluations and processing of claims  
 PRŠ – changes of claims reserves, (incurred reported and incurred not reported)  
 PRŠR – changes of claims reserves, share of reinsurance,  
 PRB – changes of bonus reserves,  
 POOR – changes of other insurance-technical reserves,  
 PKOR- revenues from interest rates obtained on insurance-technical reserves.

$$\mathbf{MP = OBP-PRE+/-PPP+/-PPPR}$$

Wherein:

- MP – valid premium net from reinsurance,  
 OBP – calculated gross premium,  
 PRE – premium ceded to reinsurance,  
 PPP – changes of gross reserves of unearned premiums,  
 PPPR – changes of unearned premium reserves, share of reinsurance.

### ***INFLUENCE OF RESERVE AMOUNT ON INSURER'S SELF-INSURED RETENTION***

Reserves serve the purpose of time risk equalization and the greater they are the greater the ability of insurers to take over large risks. Aside from time equalization there is an equalization, i.e. atomization of risk in space which is obtained by the further ceding of risk into reinsurance (Šulejić.1997, pp.142).

With the use of reinsurance we eliminate or at least reduce the danger of oversized loads and discharging of funds in case of grave damages.

By a reasonable and on economic grounds based allocation of risk into reinsurance, we get such an effect that the risk, even in case of big damages, is covered by insurance funds, i.e. reinsurance.

Each individual risk, which is taken under the insurance coverage, has to be in compliance with the amount of available reserve funds, i.e. insurer's capacity (Žarković, 2006, pp. 497). In order to determine relation between personal coverage and coverage enabled by insurer's funds, when taking over the risk, from the entire risk taken, we determine a part of that risk which the insurance company retains for itself (self-insured retention) and a part of the risk which is given to reinsurance.

Basic criteria of the allocation of risk into self-insured retention and a part which is being reinsured come from the requests for solvency and liquidity. In the

aim of maximizing the reduction of risk and establishing financial stability in their business activities, it is very important for every insurer to properly determine self-insured retention for each type of insurance. If it is determined as too low, insurer's capital and their available funds are not rationally used because there comes to an unnecessary outflow of surplus funds in favor of reinsurer. If self-insured retention is too high, insurer runs the risk which in extreme cases can lead to bankruptcy.

The effect of reinsurance starts only if the value of insured interest or the insured amount regarding the risk that the insurer took into insurance, surpasses insurer's retention. Wrongly assessed self-insured retention will mean that reinsurance provides insurer with too much or too little safety (Marović, Gojković, 2000, pp. 121).

Amount of self-insured retention is adjusted every year. Decision on the amount of self-insured retention is made by the company's top management. On the basis of that decision, we can determine the attitude of top management towards risk, hence we can have a conservative management which is less keen on taking over new risk, and daring management which prefers risk.

### ***DETERMINING SELF-INSURED RETENTION WITH THE USE OF K. BURRAU'S METHOD***

According to K. Burrau (Kočović, Šulejić, 2002, pp. 183), self-insured retention can be calculated based on the following:

$$M=2K^2P$$

Wherein:

M – maximum self-insured retention,

K – coefficient of financial stability or hazard ratio,

P – total net premium for all types of insurance taken,

Coefficient K can be determined in various ways, and one of them is:

$$K = \sqrt{\frac{1-q}{nq}}$$

Wherein:

q – unprofitability, i.t. loss-ability of the insured sum and it is expressed as a ratio of fees and the insured sum,

n – the number of insured objects

We should emphasize that this type of self-insured retention calculations on the basis of technical premium doesn't take into consideration the amount of reserves and capital owned by one company.

This calculation method cannot be applied to quota share insurance because it gives absolute amounts of self-insured retention, and not percentages – quotas.

For a proper self-insured retention determination, it is very important to take into consideration risk fluctuation. In that way, the biggest self-insured retention is applied to the first, and the smallest to the third out of the following three groups:

1. risks in which we can expect small risk fluctuation,
2. risks in which we can expect medium risk fluctuation,
3. risks in which we can expect big risk fluctuation.

Certain experiential methods are used in practice. For example, when portfolio is just being developed and we don't have statistical data, according to the experiential norm, maximum self-insured retention of a part or of the entire portfolio shouldn't surpass 20 – 30% of the planned technical premium for that type of insurance. An obvious flaw of these experiential norms is that they have nothing to do with the reserve (capital) which the insurance company puts at stake because of the risk it took. Therefore, they are introducing an additional request that the largest insured amount of a certain type of insurance, and which the insurer keeps in self-insured retention, has to be smaller than a certain part of total guarantee reserve (cca 1/5).

Based on the abovementioned methods, actuarial service determines maximum self-insured retentions which shall be applied in the following period, which is not shorter than one year. Reinsurance policy is determined at the beginning of every business year, and its realization is assessed at least once a year, with the adoption of annual account. Proper determination of self-insured retention defines economic position and stability of the business activities of insurance companies.

Guarantee of insurer's solvency is achieved by meeting the criteria on the solvency margin and guarantee fund, but also by proper self-insured retention determination. Amount of self-insured retention defines the amount of personal available resources which an insurer will be in dispose of, as well as the possibility of investing those resources. Investing available resources of insurers is also an important segment of ensuring insurer's solvency. It is achieved by abiding to the regulations on investing reserves as defined by the EU directives.

## ***CONCLUSION***

In contemporary conditions, insurance companies have a big social and economic significance. It is manifested through the performance of two functions. The primary insurance function is carried out through the protection of policyholders in case of risk realization, and the secondary through investment activity on the financial market.

In order to conduct their primary risk function, insurance companies have to accumulate enough funds in form of reserves to be able to settle their obligations. Because it is necessary that reserve funds are big enough to cover future liabilities of insurance companies, it is important to assess them correctly. The significance and problematics of an adequate formation of reserves, in the context of preventing insurer's insolvency, has recently been

highly emphasized because of the lack of reserves in insurance. That is a consequence of large and catastrophic damages which have significantly shaken the insurers.

In the business of insurance companies of non-life insurance, the process of the inflow of funds from the payments of insurance premiums and the process of paying off compensation for the insured events, in a certain accounting period won't be in balance, because total payments won't be equal to total pay offs. We need reserves to ensure dynamic balance and amortization of in that way occurred deviations. In cases when total payments are bigger than total pay offs, reserve fund increases. And vice versa, when total payments are less than total pay offs, reserve fund is reduced. Considering the significance reserves have in ensuring solvency and safety of insurers' business, there is a strong interest of the state for regulating their management. In this paper, we pointed out to the significance of reserves as a form of compensation for neutralizing deviations from predictions based on mathematical and statistical methods.

There are more types of reserves, and the basic division is on guarantee and technical reserves, which can be further divided according to the company's field of expertise. Guarantee reserve represents a guarantee for the compensation of taken liabilities on the basis of insurance. It covers long-term financial sources and it is an indicator of insurance companies' solvency. The structure of insurance companies' guarantee reserve represents the following sources: the initial safety fund, reserves established by the regulations of the company and profit reserves, retained earnings and revaluation reserves. The minimum amount of guarantee reserve is prescribed by the Law, because in that way it is ensured that insurance companies can always regulate liabilities from their business operations. Prescribing minimum guarantee reserve is very important for determining the solvency margin and solvency control which, in the EU, is determined based on the capital. On the other hand, technical reserves represent cash equivalent for the controlled liabilities of insurers. These funds occur by a separation from the current technical premium and their purpose is primarily to settle the obligations from insurance. Calculation of technical reserves is performed with the use of actuarial methods based on the appropriate statistical data in compliance with the adopted act of business policy and regulations prescribed by a regulatory authority.

In this paper, based on mathematical and statistical laws and rules of actuarial occupation, we researched and explained different methods of calculating technical reserves in non-life insurance, by underlying advantages and disadvantages, need and significance of certain calculations. Determination of amount, way of forming and use of these reserves depends on the structure of insurance portfolio, gravity of the risk taken, type of insurance and developmental level of the market. The state defines the procedures for establishing technical reserves so that they represent statistically measured liabilities of insurers to policyholders. Their assessment must be performed in an actuarially adequate way and they must not be underestimated, because in that way we overestimate net value of the insurance company.

We explained a phenomenon of unearned premium considering that risk coverage by insurance contracts does not coincide with the financial year, which is why the total harvested premiums cannot be considered earned premium in the year in question. Unearned premiums represent income for future periods and as such serve the coverage of risk in the years to come. For the current period it represents an expense, or positioning at the end of the accounting period. Today, there are many sophisticated methods for determining the amount of unearned premiums, and the subject of our study was: pro rata temporis method, lump-sum method and the proportional method.

Further on, we defined reserves for damages which are estimated liabilities that the insurance company is obliged to pay under those insurance contracts in which the insured event occurred before the end of the accounting period. They can be defined as the sum of the estimated incurred claims, i.e. the sum of all expected amounts of unsettled liabilities of insurers in the current or in previous years, assuming that these obligations will not be regulated by the end of the current accounting period. Loss reserves include reserves for claims relating to the current year and the reserve for damages carried forward from previous years, which are charged to the current year. Reserves for the current year are divided into reserves for incurred reported but not settled claims and reserves for incurred but not reported claims.

Reserving assume a certain uncertainty due to possible developments in the future. Therefore, differences between the actual final liabilities and previously established reservations are always possible. In order to get a more accurate reserving the paper presented a wide range of mathematical and statistical actuarial calculation methods, which is a precondition for proper assessment and creation of these reserves. In determining reservations for incurred and reported but not paid claims there is a possibility that reserves are estimated in each case as the sum of individually estimated damages for each not liquidated damage or to form reservations with the use of the lump-sum method as a product of a number of not liquidated claims with an average amount of claims for that type of insurance.

A special emphasis was put on the methodology for calculating risk equalization reserves, where we used a comparative method to point out to the differences in calculating these reserves in Serbia and in the countries from the region. This kind of multidimensional methodological approach enabled comparison of results, but also the noticing of advantages and disadvantages of different calculation methods and comparison of regulations of their calculations in Serbia with the countries from the region and the EU directives. Special attention was paid to the influence of reserve amounts on insurer's self-insured retention and solvency.

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***III PART***  
***BANKING & FINANCIAL MARKETS***





## **ASYMMETRIC INFORMATION INFLUENCE ON EFFICIENCY OF CAPITAL MARKET**

*Jelena Minovic*<sup>15</sup>

### **ABSTRACT**

*The paper research issues related to asymmetric information on capital markets. It is realistic to assume that all market participants do not have available all the information. The Serbian capital market is characterized by high informational asymmetry between investors. Therefore, it is necessary to consider asymmetric information on the capital market, and estimate its impact on the expected asset returns. Thus, in this paper we described issues related to asymmetric information on the Serbian capital market. Public reporting in Serbia doesn't have any serious rules, and insider information is widely used. It was happened that people respond on rumours with large investments. The paper presents the probability of informed trading (PIT measure), which would be a useful indicator of liquidity for emerging and frontier markets. Therefore, the main goal of this paper is to examine impact of asymmetric information on efficiency of capital markets. More precisely, it considers market equilibrium with investors who have asymmetrical information. For this reason, the paper presents empirical model in order to examine the impact of asymmetric information on the assets pricing. Generally, capital markets are not perfect. In particular, emerging and frontier markets are not perfect, specifically (for example, the Serbian capital market). However, there is information asymmetry through which borrowers (securities issuers) know more about the risks than the lenders to (securities purchasers). Thus, market participants may be reluctant to trade with these assets, whose characteristics and behaviour under varying economic conditions are not well known. The paper presents all advantages and disadvantages of studied models.*

**Key words:** *Asymmetric Information, Probability Of Informed Trading, Efficiency Financial Market, Expected Eeturn*

**JEL Classification:** *G14, G12, G02*

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## **INTRODUCTION**

The mechanism of establishing the price balance does not function fully in practice on the financial markets. This is due to many market imperfections, which do not permit the establishment of complete market equilibrium according to traditional models. One of the reasons is certainly the heterogeneity of the investor expectations in terms of risk and return. Therefore, Andrikopoulos (2007) argues that the classical models of finance (the model of rational expectations and efficient markets model) should be seen only as a rough approximation of how the markets really behave, and certainly it is necessary to significantly revise and expand them. Models of behavioural finance include factors of investor attitudes, psychological factors, factors of agencies and institutions as well as the risk factors. Haugen (2002) and Andrikopoulos (2007) argue that these models represent a challenge to conventional models of finance in terms of explanatory and predictive power. In recent years more and more studies prove that the existing standard models, cannot effectively explain the expected returns of the modern capital markets (see Minović, 2012). So, there is a need for the introduction of new models in finance. However, traditional models of classic finance can never be out of date because they represent an ideal market. The development of behavioural finance and their application in practice should move a real market closer to the ideal of semi-strong market efficiency (Andrikopoulos, 2007). Creating and setting up new multifactor models are a necessity and a challenge, to get closer to the problem of describing the balance of underdeveloped markets (such as Serbian). These models provide a far better explanation of return than standard models. An example for this claim is works of the following authors: (Minović, Živković, 2014; Milunovich, Minović, 2014; Minović, Živković, 2012; Minović, Živković, 2010).

Akerlof (1970) believes that if the information is sufficiently asymmetric, the market can completely disappear. Specially, in the Serbian market, being a small frontier market, the information asymmetry is highly represented. Reporting to the public in Serbia has no serious rules, but it all comes down to the mass use of insider information. Šoškić, Živković (2007) consider that the state regulation is the basic form of the elimination of information asymmetry. State regulation, through the increase of information available to investors, reduces the risk of adverse selection which is necessary for the efficient functioning of the public securities market. Šoškić, Živković (2007) argue that the risk of information asymmetry cannot be completely eliminated. On the one hand, only the data is not of sufficient benefit to investors who are not able to interpret them completely. On the other hand, there will always be managers who will want to improve the image of their company by means of false or incomplete information (Minović, 2013). There is a huge gap between the real markets and models that describe them, both in terms of predictions and the assumptions. However, in recent times, emerged so-called based-agent model, grounded on the idea that the market can be described as complex systems comprising an interaction of rational and heterogeneous agents (Anufriev, 2005).

This paper examines the models in which agents may have different levels of information related to the prices of assets and the parameters that determine their dynamics. Fernando (2003), presented like wisely this issue, presenting a theoretical framework whereby investors have asymmetric trading motives. In fact, it is reasonable to assume that to all market participants are not available all the information or they are unsure about the value of some economic variables. Another problem is when there are a number of agents in the economy, often they will not agree on the value of the parameters and price. For example, one person may think that stock prices are overvalued, while the other person thinks they are fair prices. Alternatively, a person may consider that the economy is growing, while the other person might think that it is in the stage of decline. For this reason, we present some models that allow flexibility in the quantity and quality of information given by agent. Such models are called models with incomplete, imperfect, partial, or (in the case of several agents) asymmetric information (Cvitanić, Zapatero, 2004). The main objective of this paper is to examine how asymmetric information affects the balance of the financial markets. For this purpose it will be presented theoretically the empirical model of Easley, Hvidkjaer, O'Hara (2002). However, it should be noted that this model cannot be empirically tested at the frontier market of Serbia due to lack of data. Easley et al. (2002) empirically examine the impact of asymmetric information on the valuation of assets. More specifically, this paper aims to consider the fundamental question: the existence of equilibrium in the market with investors who have asymmetric information.

The work consists of seven chapters, including the introduction and conclusion. The second chapter provides the literature review. The third chapter presents the traditional theory of market efficiency. The fourth implies the degree of information asymmetry between investors on the value of individual actions or probability of informed trading. The fifth describes the impact of asymmetric information on the expected returns through the different empirical experiences of individual authors. The sixth chapter relates to the advantages and disadvantages of those models. The seventh chapter gives a conclusion.

## ***LITERATURE REVIEW***

Opposite to the classical Fama (1970) theory of market efficiency, there is a theory of behavioural finance (Haugen, 2002). Hirshleifer (2001) argues that behavioural finance offer alternative explanations for the key issue of why prices diverge from their fundamental values. His key argument is based on the claim that human behaviour and perception are two essential elements of financial decision making. Andrikopoulos (2007) considers that this view led to the search for new models and ideas that can explain and predict market behaviour of various psychological prejudices. According to this theory, the market does not pay attention to fundamentals. In an extreme case, the market in the short term is in a state of complete and unpredictable chaos. Then the models based on rational economic behaviour become invalid, while models based on behaviour (the so-called behavioural models) are beginning to dominate. These models focus on the

bias in behaviour reaction to the real economic events. In an extreme interpretation of this theory, the market does not respond to the actual economic events, but only to their own changes. O'Hara (2003) is a model for the valuation of assets based on asymmetric information and claims that current theories of valuation of assets ignore the existence of information asymmetry in the market. It shows that assets which are valued on the basis of private information require greater equilibrium returns. In contrast, the assets being valued on the basis of publicly available information requires a lower equilibrium returns (O'Hara, 2003). Easley, Hvidkjaer, O'Hara (2002) prove that information affects the price of the asset.

Nevertheless, very extensive theoretical literature is devoted to price changes caused by the presence of informed and uninformed traders in the market (i.e. information asymmetry). Those sources describe models that examine the behaviour of market makers when some retailers are better informed than the other (Teodorović, 2008). Significant contribution in this part of the literature gave Glosten, Milgrom (1985) presenting the model of sequential trading, and Madhavan et al., (1997). Hasbrouck's (1991) approach is also based on the theory of asymmetric information. Wang (1994) examines investors who are heterogeneous in terms of their investment opportunities and access to information. The balance in competitive markets with agents who have asymmetric information analysed Trifunović (2008). Trifunović (2008) used the concept of rational expectations equilibrium to describe some of the additional role of equilibrium price unlike Walrasian equilibrium, whereby equilibrium price is only an indicator of relative deprivation.

A major contribution in the field of the analysis of the existence of equilibrium in the market with investors possessing heterogeneous expectations and asymmetric information gave the following authors: (Lintner, 1969; Williams, 1977; Wang, 1994; Detemple, Murthy, 1994; Grossman, Zhou, 1996; DeMarzo, Skiadas, 1998; Basak, 2005; Garcia, Urošević, 2006) and many others. Otherwise, the literature on financial markets based agents can be divided into two groups, where the first group contains models that can be empirically tested and those are the so-called analytical models, while the second group includes numerical models designed for computer simulation. The great input to the literature with analytical models provided the following authors: (Easley, O'Hara, 1987, 1992; Easley et al. 2002; O'Hara, 2003; Lux, 1998; DeLong et al., 1990;) and others. Author's contributions of: (Levy et al, 2000; LeBaron et al., 1999) belong to the literature that deals with the numerical models. The microscopic simulations of different models presented in Samanidou et al., (2006) clearly explain that the dynamics of financial markets is similar to the dynamics of any other system with many interacting agents. Samanidou et al. (2006) agree that the financial markets should be viewed as a complex multi-agent system. Equilibrium models with heterogeneous agents possessing asymmetric information (models by Levy et al., 2000), resolved by the method of numerical simulation are described in Drašković et al., (2014).

Garcia, Urošević (2006) studied a class of equilibrium with rational expectations and noisy rational expectations in markets with a large number of agents. Specifically, Garcia, Urošević (2006) introduced a new concept of noisy

rational expectations (liquidity dealers, shocks), necessary and sufficient for returns in the major economies where prices are partially uncovered and information are perfectly aggregated, trading behaviour is competitive, or agents acting as price-takers. Their idea of noisy rational expectations has shown that it is necessary and sufficient to have a limited economy with perfectly competitive behaviour. These authors suggest that as long as the noise increases with the number of agents in the economy, competitive equilibrium is well defined and leads to non-trivial information acquisition, perfect aggregation of information and fragmentary revealing prices. In this equilibrium, risk sharing and price revelation play a different role in relation to the standard economy, in which the noisy rational expectations are not negligible. The key difference between the two types of balance lies in the role of informed agents, in particular in their capacity of sharing with a group of uninformed agents. In diversity of noisy rational expectations model the size of informed population is negligible, and uninformed investors are marginal in terms of sharing risk. On the other hand, informed agents are marginal in relation to the information they have on prices. In this way asymmetric information plays a nontrivial role in determining the equilibrium price (Garcia, Urošević, 2006).

### ***EFFICIENT MARKET***

In traditional theory of finance there is efficient market assumed by Fama (1970). On such market, there is no space for active investment strategy, because there are no overpriced or under-priced stocks. This theory state that models are based on rational behaviour of investors, which make a good estimation of market prices. In this case, all price volatilities are caused by past events (Minović, 2013). Fama (1970) formulated Efficient Market Hypothesis (EMH) as follows:

- Only prices and data from the past determine in total current market prices. Current prices are memory-free and they are independent and equally distributed among securities (weak form).
- All information available in public determine in total current market prices (semi-strong form).
- All information, including insider information, determines current market prices (strong form) (Hoguet, 2005).

According to Fama's (1970) theory, market is considered efficient according to given set of information if there is no ability to make abnormal profit with trading based on this information. Thus, it's impossible to make abnormal profit with trading based on publicly available information. Fama (1970) provides mathematical model as

$$E(p_{j,t+1} | \mathfrak{I}_t) = 0 \quad (3.1)$$

where  $p_{j,t+1}$  represents difference between real price of security  $j$  in moment  $t+1$  and their expected price based on given information set  $\mathfrak{I}_t$  (see formula (3.2)).

If expectation, given by formula (3.1), is equal to zero means that there is no chance for investor to beat up market, and that there is no under or overestimated securities in moment  $t$ . In this case, we can consider stochastic process  $p_{j,t+1}$  as a fair game (Andrikopoulos, 2007).

Real abnormal profit is given as difference between real price of security  $j$  in moment  $t+1$  and expected price for same security based on available information set, or

$$p_{j,t+1} = P_{j,t+1} - E\left(P_{j,t+1} \mid \mathfrak{F}_t\right) \quad (3.2)$$

where  $P_{j,t+1}$  is price of security  $j$  in moment  $t+1$ , and  $E$  is expectation operator.

Fama's (1970) efficiency theory describe that information flows only influence on current prices and that market prices reflect best fundamental values of their basic assets. This theory implied existence of stochastic process with independent, equally distributed binomial randomised variables, known as random walk (Andrikopoulos, 2007).

In the world of classic finance, there is no prize for investors for holding anything but market portfolio. This is based on assumption that investors have rational expectations and that market efficiently aggregate information, where an equilibrium price involves all available information. Price is equal to value of security in the moment of trading, because all available information are discounted and involved in price (Hoguet, 2005). Some of these assumptions are very unrealistic, for example assumptions about total rationality of investors, symmetry of information, homogenous expectation, etc. There is phenomenon in reality which can easily invalidate assumptions given in models of classical finance. Beside, some empirical studies provide totally opposite projections according to analytical models, based on before mentioned assumptions (Martinez-Jaramillo, 2007). Amihud et al. (2005) state that classic theory of asset pricing without arbitrage stand on assumption of liquid markets. Literature dealing with liquidity implies that there is not such a thing as totally liquid market, but neither that nor all investors have same information nor they are all active on market all the time (Amihud et al., 2005).

Empirical testing of EMH theory is problematic. But, empirical evidences against market efficiency and theoretical linear relation between risk and expected return can be enough to eliminate assumptions needed for classical theories. Literature related to basic anomalies of market is one of major challenges in modern finance research and provide an opportunity of escalation of new research area, such as behavioural finance (Andrikopoulos, 2007).

### ***PROBABILITY OF INFORMED TRADING***

Behavioural finance supporters argue that investors tend to over-react to the recent information received. This would mean that the information that they thought as crucial had become of less important character in relation to the newly arrived

information. If the market reaction to the initial information is unbiased, one can expect that new relevant information has an equal chance to reverse the action price in the opposite direction from it reply to the initial information. However, if the initial information on the market is overweighed it will not happen (Haugen, 2002).

Here, we present measure of level of information asymmetry or probability of informed trading (PIT measure) and its characteristics. PIT measure is introduced by Easley, O'Hara (1987, 1992) from the market microstructure model. PIT measure cannot be measured directly, but it is necessary to evaluate it by the numerical maximization of the credible function by specified theoretical model (Yan, Zhang, 2006). PIT is evaluation of the information fragments based on orders, meaning it is based on the imbalance between the purchase and sale of certain assets.

Considering a model that reflects trading as recurring daily play between risk-neutral competitive creators of markets and two kinds of traders: informed and uninformed. Market creators set the buying and selling prices on the basis of their assumptions on basic correct value of assets. In that way PIT measure plays an important role on the market makers assumptions because they can only observe the outcome (order) of the market trading having no possibilities to distinguish informed and uninformed traders. From the econometric point of view, for a given specific outcome (order) of trading, PIT can be calculated through the evaluation of the group of the structural parameters in the model (Li, 2008). Trading occurs over  $t = 1, \dots, T$  of possible discrete trading days. Every working day (or day of trading), private information appear with probability  $\alpha$ , in which case the probability of bad news is  $\iota$ , and a good ones  $(1 - \iota)$ . Traders who have information about the bad news sell assets while those who have information about the good news buy them. All merchants come to the market following an independent Poisson process (Easley et al., 2002). Easley, O'Hara & Saar (2001) define information events as private if they affect trade, and the public ones if they do not affect it. Public information can cause price changes. A small number of trading or complete absences of trade is mainly generated from the events of public information (Easley al., 2001).

If the private information about the event appears, to informed traders it arrives according the  $\eta$  rate, to unenlightened customers arrive at a rate  $\varphi_b$  and to uninformed sellers arrive at the rate  $\varphi_s$ . If there is no information about an event, the received rates of uninformed buyers and sellers remain unchanged. The function of the credibility of the total number of purchases and sales on one trading day is (Easley et al., 2002):

$$L((B, S) | \theta) = \alpha(1 - \iota) e^{-(\eta + \varphi_b + \varphi_s)} \frac{(\eta + \varphi_b)^B (\varphi_s)^S}{B! S!} + \alpha \iota e^{-(\eta + \varphi_b + \varphi_s)} \frac{(\eta + \varphi_s)^S (\varphi_b)^B}{B! S!} + (1 - \alpha) e^{-(\varphi_b + \varphi_s)} \frac{(\varphi_b)^B (\varphi_s)^S}{B! S!} \quad (4.1)$$

where  $(B, S)$  represent the total number of purchases and sales for the day, and  $\theta = (\eta, \varphi_b, \varphi_s, \alpha, \iota)$  is a vector of parameters. Introduced is the assumption that the

days are independent, and the credibility function for T day is simply the product of the above daily functions of credibility, consisting of independent identically distributed variables along all day in the model (Easley et al., 2002

$$L(\theta|M) = \prod_{t=1}^T L(\theta|(B_t, S_t)), \tag{4.2}$$

where  $M = ((B_1, S_1), \dots, (B_T, S_T))$  represents a collection of data (Yan, Zhang, 2006). The measure probability of informed trading, or measure of information

asymmetry is defined as: 
$$PIT = \frac{\alpha\eta}{\alpha\eta + \varphi_s + \varphi_b} \tag{4.3}$$

where  $\alpha\eta + \varphi_s + \varphi_b$  is the incoming rate (speed) for all orders and  $\alpha\eta$  incoming rates for orders based on information. The quotient represented by equation (4.3) is part of the order arising from informed traders, or the probability that the opening trade is based on information (Easley et al., 2002). In other words, this measure describes the percentage of trading based on private information of all observed trading. The higher value of these measures means a greater degree of information asymmetry, and consequently the lower liquidity (Li, 2008).

Maximizing credibility function represented by equation (4.2) according to the parameters  $\theta$  obtained is the evaluation of the structural parameters. To achieve the solution the technique of numerical maximization (Yan, Zhang, 2006) is used. Easley et al. (2002) recommend numerical maximizing of the following likelihood function:

$$L((B, S)_{t=1}^T | \theta) = \sum_{t=1}^T [-\varphi_b - \varphi_s + M_t (\ln x_b - \ln x_s) + B_t \ln(\eta + \varphi_b) + S_t \ln(\eta + \varphi_s)] + \dots, \tag{4.4}$$

$$+ \sum_{t=1}^T \ln \left[ \alpha(1-t) e^{-\eta} x_s^{S_t - M_t} x_b^{-M_t} + \alpha\delta e^{-\eta} x_b^{B_t - M_t} x_s^{-M_t} + (1-\alpha) x_s^{S_t - M_t} x_b^{B_t - M_t} \right]$$

where  $M_t = (\min(B_t, S_t) + \max(B_t, S_t)) / 2$ ,  $x_s = \frac{\varphi_s}{\eta + \varphi_s}$  and

$x_b = \frac{\varphi_b}{\eta + \varphi_b}$  (Yan, Zhang, 2006). The advantage of using this factorization is to

increase efficiency and reduce truncation error. This is particularly important for actions that have a large number of buying and selling, because without factorization it would be necessary to take trading frequency parameters (that is just  $\eta$ ,  $\varphi_b$ , or  $\varphi_s$ ) that are equal to the actual number of trading (that is B or S). This has usually caused problems of underflow over flow of numerous computers' software (Yan, Zhang, 2006).

Evaluation of PIT measures may be biased. To control potential bias in evaluation of PIT measures Easley et al. (2002) used the instrumental variable, while Vega (2006) used the so-called bootstrapping methods. Brown et al.(2004)

verify the robustness of their empirical findings by filtering PIT score. Yan, Zhang (2006) propose a method for overcoming the bias related to the evaluation of PIT rates. Bias occurs when the procedure of the numerical maximization generates solutions. Yan, Zhang (2006) have reported evidence that investors tend to sell losing assets at the end of the year due to tax incentives and buy winning ones at the beginning of next year. This behaviour leads to seasonal changes in trading based on information. Vega (2006) also used the PIT measure. He empirically measured the impact of private and public information. Vega (2006) concludes that all information have the same effect on the efficiency of markets. He argues that it is irrelevant whether the information is public or private. In his opinion, it is essential that the information is related to the incoming rate of the informed or uninformed traders (Vega, 2006).

### ***IMPACT OF ASYMMETRIC INFORMATION ON THE EXPECTED RETURN***

Easley et al. (2002) investigated the role of information on which trading is based and how they affect the return of assets. They believe in a dynamic market the prices of assets are continuously adapting to new information. These authors claim that the process in which asset prices become information effectives cannot be separated from the process of creating assets return. Easley et al. (2002) assessed PIT measure by using high-frequency data for the assets on the New York Stock Exchange (NYSE) for the period 1983-1998. The assessment result is the likelihood time series of trading based on the information for individual actions and for the large number of shares. They questioned whether this probability information affects the assets returns including the measure in the Fama-French's (1992) model for the valuation of assets. Their main result is that information affects prices of assets: stocks with higher PIT measures require higher rates of return. In fact, they found that the difference of 10 percentage points in the probability of trading based on information between the two actions leads to differences in their expected return of 2.5% per annum. These authors interpreted their results as a strong support for the hypothesis that information basically affects the prices of assets (Easley et al., 2002). Easley et al. (2002) found that across all of the securities, the probability of information-based trading, as a measure of liquidity, has a large positive and significant effect on securities return (Ammihud, 2002). They argue that the information risk can be evaluated. O'Hara (2003) analyses the impact of asymmetric information on the portfolio selection and evaluation of the assets in the context proposed by Grossman, Stiglitz (1980). O'Hara (2003) focuses on the differences in the election of the portfolio between informed and uninformed agents, as well as the effects of asymmetric information on the size of the risk-premium (O'Hara, 2003; Biais et al., 2004). Easley, O'Hara (2004) prove that information asymmetry affects the prices of assets in the balance. Wang (1993, 1994) also studied the effect of information asymmetry on the desired return in his dynamic model.

Li (2008) examined the independent and dominant effects of the levels of liquidity, information asymmetry and divergence in the attitudes of the assets returns in an emerging market, China's stock market. He used Ammihud's (2002), liquidity measure, termed as variable *ILLIQ*, considering the *PIT* variable represented by equation (4.3) as a proxy for information asymmetry. In addition, he took the variable *OBS* as an approximation for the divergence of views. Li (2008), using cross-regression examined how each variable *ILLIQ*, *PIT*, *OBS*<sup>16</sup>, affects the return of assets (Li, 2008):

$$R_t^i = \kappa_{0,t} + \kappa_{1,t} \hat{\beta}_{p,M} + \kappa_{2,t} SMB_{i,t-1} + \kappa_{3,t} HML_{i,t-1} + \kappa_{4,t} ILLIQ_{i,t-1} + \varepsilon_{i,t}, \quad (5.1)$$

$$R_t^i = \kappa_{0,t} + \kappa_{1,t} \hat{\beta}_{p,M} + \kappa_{2,t} SMB_{i,t-1} + \kappa_{3,t} HML_{i,t-1} + \kappa_{4,t} PIT_{i,t-1} + \varepsilon_{i,t}, \quad (5.2)$$

$$R_t^i = \kappa_{0,t} + \kappa_{1,t} \hat{\beta}_{p,M} + \kappa_{2,t} SMB_{i,t-1} + \kappa_{3,t} HML_{i,t-1} + \kappa_{4,t} OBS_{i,t-1} + \varepsilon_{i,t}. \quad (5.3)$$

Then, he gathered all the variables in one regression equation, to see which variable has a dominant effect on returns (Li, 2008):

$$R_t^i = \kappa_{0,t} + \kappa_{1,t} \hat{\beta}_{p,M} + \kappa_{2,t} SMB_{i,t-1} + \kappa_{3,t} HML_{i,t-1} + \kappa_{4,t} ILLIQ_{i,t-1} + \kappa_{5,t} PIT_{i,t-1} + \dots (5.4) \\ + \kappa_{6,t} OBS_{i,t-1} + \varepsilon_{i,t}.$$

Li (2008) has shown that stocks with higher levels of liquidity, and lower information asymmetry, or lower levels of differences in attitudes, show significantly lower returns excess. What is more important, explanatory power of liquidity level in the asset return reflects only through information asymmetry or the disagreement of opinion. Moreover, the author finds that there is no evidence of dominating effect between information asymmetry and dissenting opinions when considering their impact on the return of assets. These findings confirmed the fact that information asymmetry and disagreement in attitudes both affect the level of liquidity. Li (2008) confirms that asymmetric information can only partly explain the dispersion positions along the investors in the Chinese stock market.

Biais et al. (2004) created theoretical and empirical analysis of the impact of heterogeneous information on the valuation of assets in the balance, and the selection of the portfolio. Their theoretical analysis is based on Admati (1985), which means that in addition to the total of partial information, portfolio separation theorem does not apply. Strategy buy-and-hold is not optimal, and investors should structure their portfolios using information contained in the prices. These authors applied the price-contingent portfolio allocation strategy, and show that this strategy economically and statistically outperforms passive or index buy-and-hold strategy. Thus, they show that prices reveal information, which is contrary to the homogeneity of information in the CAPM-in. This is in line with the balance of Noisy Rational Expectations Equilibrium (Biais et al., 2004).

<sup>16</sup> *OBS* measure presented and described in Minović (2013).

## ***BENEFITS AND DISVANTAGES OF THESE MODELS***

Elton et al. (2007) suggest two opposing problems related to explain the anomaly of assets evaluation by using behavioural models. The first problem is that there is no single, consistent model of the investor behaviour. Thus, while the classical theory such as CAPM has unequivocal empirical predictions, most behavioural models lack them. Investor overreaction is in accordance with one kind of heuristics, while the overconfidence is in accordance with the second. This problem can be interpreted as a sign that this field of behavioural finance has no developed, complete, internally consistent model of investor knowledge and action, which can be tested. Another problem is that most of the empirical research in the field of behavioural finance does not use data on investor behaviour (behavioural data). Elton et al. (2007) point out that investor psychology affects stock prices. However, testing whether the investor psychology can affect behaviour and whether this behaviour in turn can impact on the price, requires much more data and significant analysis.

Models that take account of asymmetric information and heterogeneity of investor expectations, and can be empirically tested have advantages because their dynamics can be studied using powerful tools of mathematical analysis (Anufriev, 2005). Empiric models have an advantage over the simulation models because they can help to present realistically the actual effects and trends in the markets if data are available. The main disadvantage of the empirical models is very restrictive assumptions needed to be introduced to ensure analytical solution. On the other hand, using models made for simulation on computers very realistic simulation of the capital market became available. Taking advantage of modern computer processes and simulation techniques, it is possible to confront the real market data with the real market with the results of "microscopically" realistic simulation market models. Traders on the stock markets behave in different manners in dependence of their individual preferences, attitudes towards risk, expectations, resources, memory and data processing capabilities. The so-called microscopic simulation is an alternative to a representative individual method (Solomon, 1999). The main advantage of simulation modelling are that these models do not impose any assumptions and therefore have no limitations. Simulation models actually enable researchers to a high degree of flexibility (Levy et al., 2000; Anufriev, 2005).

General view is that models of traditional financial theories have very low explanatory power, and more importantly have a very low predictive power (Haugen, 2002). Haugen (2002); Andrikopoulos (2007) suggest that investors are very interested in the predictive power of the model; therefore the model of behavioural finance will have superiority over the traditional theory.

## ***CONCLUSION***

The paper presents an empirical model of Easley et al. (2002) as well as a measure of the degree of information asymmetry so called probability of

information trading (PIT measure). Easley et al. (2002) have empirically demonstrated the impact of asymmetric information on the assets valuation. It turns out that the heterogeneous information caused by levels of market liquidity has a great significance on the expected returns. Liquidity depends definitely on the information. The "perfect" and complete markets, with extensive and available information of all market participants, and a complete set of securities, present poor liquidity problem. The assets can be traded at its "basic" values, the solvent institutions will always be properly funded and risks can always be assessed and distributed to agents affected by risks. However, markets are not perfect. In particular, those are not emerging and frontier financial markets such as Serbia. Presented is an information asymmetry which means that borrowers (issuers of securities) know more about the risks than lenders (or purchasers of securities). Consequently, market participants may be reluctant to trade the assets whose characteristics and behaviour under varying economic conditions are not well known. Uncertainty in the market can affect the liquidity in two ways: the impact on the information and the impact on the market dynamics. In times of crises, when uncertainty increases, all the trading can become impossible, and market liquidity disappears (Banque de France, 2008). Akerlof (1970) showed that the market liquidity is inversely related to the degree of information asymmetry common among economic agents. He believe that the market can completely disappear (which is the most extreme form of illiquidity), if the information is sufficiently asymmetric (Akerlof, 1970). With this attitude goes along the attitude of Šoškić, Živković (2007) which stated that the risk of adverse selection, caused by information asymmetry, can ultimately stop a financial activity completely.

Specially, in the Serbian market, being a small frontier market the information asymmetry is represented significantly. Reporting to the public in Serbia has no serious rules, but it all comes down to the mass use of insider information. The problem with this issue is that it is quite impossible to decide whether one is dealing with pure manipulation or reliable information. In circumstances when it is not possible to consistently estimate which information is correct and which is not, it is better not to have any, but have false information. Šoškić, Živković (2007) suggest that the state regulation is a basic form of the elimination of information asymmetry. State regulation by increasing the information available to investors reduces the risk of adverse selection necessary for the efficient functioning of the public securities market (Šoškić, Živković, 2007). To analyse the impact of illiquidity on the expected returns it would be useful to determine the PIT measure for frontier markets (e.g. the Balkans) and use regression equations to examine the impact. This PIT measure (the probability of trading based on the information) would be a useful indicator of illiquidity of frontier and emerging markets due to the extreme informational asymmetry in these markets. However, PIT measure is empirically impossible to locate due to lack of data at frontier markets. Therefore, the empirical assessment of these measures is impossible for frontier markets. It turns out that it is impossible in these markets to examine empirically the impact of asymmetric information on the expected returns.

However, the future research could contain numerical simulation of some frontier segmented market with agents who have asymmetrical information and heterogeneous beliefs. In particular, it should make the simulation of the Serbian market, which realistically reflects real behaviour of frontier market. For implementation of numerical simulation it is necessary to know the number of actual investors and their portfolios as well as the capital that they have invested in the Serbian market.

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## **IMPORTANCE OF BANK MARKETING INFORMATION SYSTEM (BMIS) IN MODERN BANKING**

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### **ABSTRACT**

*Banks collect numerous important information through market research. One of the activities of the bank is to process and systematize all available information about the customer service and competition in the financial sector by using its banking information system before planning marketing activities.*

*Banks use marketing information systems to collect, process, and analyze information collected from internal and external resources with an aim to use this information as guidance and support in decision making process.*

*BMIS is a powerful tool in data collection form internal and external environment and it utilizes Marketing Information System through which banks collect everyday information about events in the marketing environment.*

*The aim of this paper is to highlight the importance of application of Banking Information systems in modern banking.*

**Key words:** *Banks, Marketing information system, Marketing Intelligence, Internal Environment, External Environment*

**JEL Classification:** *M31*

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## ***INTRODUCTION***

In the contemporary world and globalized market environment, followed by rapid technological development, the survival and profitable long term operations of banking institutions are almost impossible without the use of modern information technology. Rapid development of the Internet and the World Wide Web offer banks and other financial institutions with the opportunity to create new bank products, improve their competitiveness on the national and international market, and their business and communication with the clients. Development of the Internet enables quick and simple communication, and instant transfer of huge amounts of data, with minimum cost. All these elements comprise the new way of doing business, so called e-business.

Application of modern information systems has become a necessity in all industries, and it is even more important in the marketing in the banking sector. Having in mind the increasing competitiveness of the financial market and among the banks, implementation of the marketing concept and philosophy in the banks has become the crucial component of the business strategy.

Bank marketing requires research of all types of bank products, as well as utilizing a range of instruments in the achievement of the business goals, based on the optimized marketing mix.

The aim of the paper is to use deductive and analytical method to emphasize the importance of application of the bank marketing information system in the modern banking sector

## ***SPECIFICS OF BANK MARKETING***

Banks are financial institution which play a major role as institutions of marketing system and thereby need to accept marketing as business concept and business philosophy. Banks should apply the marketing philosophy in business activities such as obtaining financial resources and offering them in the financial market. These are core activities of the banks and their aim is to assist the clients of banks to solve their financial problems, which is the foundation of the bank marketing program.

Bank marketing is economic process which supports the functioning of the banks and the financial system as a whole. Bank marketing contributes to adjustment of demand and supply of bank products and services based on the research and assessment of the clients' needs, and impacts the stability of the financial system in macroeconomic terms.

Bank marketing involves the activities which banks use to identify, direct and satisfy the needs for bank products and services. Bank marketing activities aim to generate and meet the demand for the bank products and services.

The aim of the financial marketing is to attract new and retain existing clients through selection, design, distribution and communication of superior value to clients.

The goal of marketing oriented banks is to recognize the needs of their clients, understand their demands and wishes, so that business activities are designed in such way that they enable banks to meet those needs.

Considering that the essence of the marketing philosophy is achieving customer satisfaction through marketing mix instruments (banking product, price, distribution channels and promotion), the best effects will be achieved through creating and maintaining the balance between these variables.

Marketing strategy represents the basic assumption of the management in positioning of the bank. Application of the marketing strategy in the banking industry is under impact of increasing competition in the financial markets, globalization and integration. Such trends in the environment require the change in the business philosophy of banks. By introducing marketing philosophy in the banks, management will gain information about business opportunities, possibilities and threats.

Primary activity of marketing managers in the application of marketing concept is getting to know the market and the customers. Based on the information on major trends in the market and in the consumer behavior, bank managers have the opportunity to combine marketing mix instruments (product, price, promotion and distribution), with an aim to achieve marketing strategy goals and customer satisfaction.

It is important to emphasize that marketing mix in banks includes, besides traditional 4P instruments (product, price, place and promotion), a broader context because service sector is labor sensitive, and the quality of the service and customer satisfaction highly depend on employees (Veljković, 2009, p. 52).

Thus, traditional marketing mix 4P has been added three new instruments and has become mix 7Ps which includes (Đorđević, 2011, p. 377) :

1. Product/services,
2. Price,
3. Promotion,
4. Place,
5. People – employees in banks,
6. Process– bank service provision process i
7. Physical evidence – bank ambience.

The greatest challenge of the modern banking is finding the way and methods of creating and maintaining competitive advantage on the increasingly competitive and complex business environment. The role of marketing is to support the achievement of these strategic goals. Therefore, implementation of the effective and efficient marketing strategy is crucial to successful development of the bank culture and the quality of bank services.

Banking sector early recognized the importance of the customer relationship management. Customers choose the bank in which they trust and authorize them to manage their finances. Thus, the biggest challenge is to develop customer relations

based on trust and loyalty, and to reduce customer defection, which could be damaging for banks in the competitive environment.

Bank in the developed countries have successfully adopted marketing concept. In the developing countries, however, marketing concept introduction still lags behind, especially when it comes to restructuring the banking sector, privatization and implementation of the modern technology.

Globalization of the financial markets is the process of integration which has caused the national markets to act more as part of the global market than as separate entities. Global financial market of the 21 century is under impact of the modern technologies which enable constant interconnectivity of the international markets and 24 hour trade and the growth of the multinational corporations which require continued support of the financial institutions and financial services. Three major trends affect the customer behavior in banking sector:

1. greater consumer influence,
2. longer life expectancy and
3. growing importance of women in economies

Before initiating marketing activities, bank managers need to analyze current environment conditions and assess the future trend in the environment. This is necessary in order to identify the suitable marketing activity which will support achievement of bank strategic goals. Managers analyze factors which can be divided into two groups: 1. external factors and 2. internal factors. These factors are dimensions of the internal and external environment of the bank. These factors are also important in defining goals, plans and programs of the bank.

Using marketing strategy to support development of the business strategy of the bank enables the managers to position the bank offer in the increasingly competitive market (Knežević, 2006, p. 132).

### ***IMPORTANCE OF THE INFORMATION EXCHANGE BETWEEN BANKS AND THEIR CUSTOMERS***

In the past ten years special approach in the banking sector has evolved. This approach is called retail banking, which is customer focused and provides the services which enable customers to conduct numerous transactions quickly and efficiently, using multiple channels and facilities, online service, cell phones and others.

Customers today require quick, efficient and personalized service, through different channels which they find most convenient at the given time. Clients are aware that banks need them more than they need banks.

Bank operations cannot be performed efficiently without communication between banks and their clients. Information exchange establishes the connection that should create added value. Information exchange is equally important in creation of added value as material, equipment, employees and others. Information is also needed in processes such as internal control, planning, analysis and forecasting of the future trends in the capital markets. For the information to be

valuable it has to be reliable, complete and timely. Unless managers get correct, reliable and actual information, their work will not result in desired effects.

Selection of the valuable information is very important in the banking sector. Exchange of the valuable information enables managers to make quality decisions, and valuable information need to be stored and managed carefully. Traditional communication process was based on the one way information flow from banks to clients. As thus communication process has many faults, the need for introduction of two way communication and the development of more interactive and closer relationship between banks and their clients based on personalized marketing and marketing mix arose. Characteristics of this type of communication include interactive dialog between banks and their clients and continual information exchange.

Correct information, processed and organized so that they support decision making enable banks to establish the quality relationships with their clients and the users of banking services. This is very important both for the bank and for the consumers.

In modern business, banking services are necessary for businesses and individuals equally, so the banks rely on public relations and marketing. External communication has become a precondition for successful business. The main goal of the external communication is to attract new and retain existing customers. Banks use different strategies depending on the type of service they promote. External communication can be classified as: communication with customers, other banks, media, and other stakeholders such as shareholders, suppliers, government agencies, local communities, nongovernment organizations, and others.

As the competition increases, communication with clients becomes more important for banks. Development of the relationships between banks and their clients is only one part of the overall communication that needs careful consideration. In order for the banking sector to provide suitable service to their clients and build the relationships based on trust and commitment, it is necessary to ensure quality communication between employees and between employees and clients during the service provision.

Employees of banks are important factor of the communication process, both in terms of employees – management, as in terms of relationships between employees and clients. Through active involvement in the provision of services, employees become the backbone of the business process and the key factor in the realization and increase of sales. Employees are in the direct communication with clients, they promote services, build trust and influence the quality of the services and thus the customer satisfaction.

The importance of the employees in the service provision and promotion requires attention of the managers who need to develop relationships between employees and clients, and define the tasks that employees need to perform, thus contributing to the achievement of the banks strategic goals. If mistakes appear in managing the process, it will affect the efficiency of the human resources.

## **CHALLENGES AND THREATS IN MODERN BANK MARKETING**

External threats that may affect modern banking are:

- increased competitiveness of the financial markets,
- size of the market,
- globalization of the financial markets,
- sophistication of consumers i
- changes in the legal, economic and political environment.

Financial institutions usually compete in the broad market areas, geographically dispersed and very fragmented and heterogeneous. Market research requires the use of precise marketing techniques, communication with the small groups of consumers and identification of individual needs of consumers.

Strictly speaking, we can define two characteristics of the banking market. One relates to the very character of consumers of banking services, and the other refers to the character of banking services. People use banking services to meet their secondary needs (payment by cards, cash withdrawals ..), which enables them to meet their incremental needs (grocery shopping, buying a car ...). Another feature relates to the duality of marketing tasks in the field of financial services: marketing efforts to attract funds and marketing efforts to attract users of these funds. Regardless of the target market, banks must provide consumers the following key values:

- Search and harmonization - finding the other side of the transaction, matching the people who need money with people who have more money than they currently need, as well as matching sellers with buyers;
- Information about the market - providing adequate information regarding the operations of bank customers;
- Correct procession - ensuring the execution of banking transactions, without failures;
- Capital - the provision of funds, guarantees and risk transfer;
- Knowledge - providing precise information on trends in the market, thereby generating insights and opportunities for clients.

Another problem, related to the implementation of the marketing philosophy in the banking sector, involves certain characteristics of financial services, which have a major impact on the marketing process. Managements in the banking sector are facing variety of problems regarding the definition of competitive markets and recognition of sources of competitive advantage. These problems are largely related to the characteristics of services, among which are the most common:

- intangibility,
- complexity
- simultaneous production and consumption,
- highly specialized marketing system
- heterogeneous market and geographic dispersion
- labor intensive activities

Marketing management use several strategies in such situations, which are primarily based on the increase of the tangibility of services, prioritizing certain dimensions of the image and the training and education of the employees.

From the aspect of marketing in banks, it is necessary that the banks recognize the importance of achieving high level of communications with their customers in order to establish long-term relationships based on trust and confidence. This may cause difficulties in predicting consumer behavior that may be reflected in (Harrison, 2000):

- Consumers are increasingly changing their service providers and have two or more accounts;
- Consumers often prefer cash instead of using other means of payment;
- Consumers find the ways to use bank accounts and cards, which the sellers have not anticipated;
- Rehabilitation programs in the field of attracting consumers from the central branch have not proven successful;
- The majority of consumers are not independent in their decision making;
- Abuses have increased to reach enormous proportions

Both banks and their customers should focus on development of organizational structure that requires contracting and competitive confidence.

### ***IMPORTANCE OF BIMS IN MAINTAINING COMPETITIVENESS AND CUSTOMER RELATIONSHIPS MANAGEMENT***

Different marketing decisions are made continuously in all sectors of banks. These decisions must be made since the bank wishes to recognize the possibilities and opportunities that arise in the market and, on the other hand, identify the dangers and limitations that can be both of internal and external character.

Most of these decisions relates to the selection of the optimal combination of marketing mix, i.e. the implementation of certain actions that are performed in the context of marketing. Each decision requires timely and complete information. Information in the marketing system of the financial sector constitutes a "feed - back" from the market, i.e. from consumers of banking products and services.

A specialized form of management information systems in the field of marketing financial institutions is Banking Marketing Information System (BMIS). BMIS task is to manage information from the environment, transfer the information to the bank marketing management, which management uses through its executive functions, and on the basis of relevant information carries out the decisions into action. The quality of marketing decisions, which increase the efficiency and effectiveness of various marketing performance measures, depends largely on the marketing information system in a given environment. Therefore, bank management needs to have quality information if they want to make good decisions (Reedy, J., Schullo, S., Zimmerman, K., 2000).

Marketing information system involves the collection, processing and analysis of primary and secondary data, which become information in the form of reports,

analysis and recommendations. Information is processed, refined and interpreted data. In such forms they support marketing decision-makers in the process of bank management in all its phases: planning, execution and control.

As stated above, financial institutions are under constant pressure from the competitive environment and the importance of establishing a mutually beneficial communication with clients, in order to achieve customer satisfaction. Because of this, it is necessary to collect timely information about events in the environment.

Before designing appropriate banking products and services, the bank must first determine the target group and its size. The bank cannot adapt its services to a very small number of users. However, if the number of consumers is higher than the bank would use this opportunity.

Marketing Information System (MIS) is a very complex organizational system of the bank. Its main task is to ensure the monitoring of events in the market, flow of information in both directions and to provide opportunities for timely management of functions and processes in the bank. MIS contributes to functional realization of the business policy, it is accessible to all users, flexible, user friendly and designed to be efficient, while providing secure and relatively simple management support.

Modern BMIS are designed and integrated to be effective, fast, and reliable management information system. Based on the latest information and communications technologies and software solutions of the latest generation, they represent a strategic investment with long-term effects. This system provides a number of opportunities in the form of rapid internal and external business communications via e-mail. This system enables the bank to personalize messages to clients and increase their interest in bank's offer.

For the bank to be able to manage competition adequately it is necessary to obtain data about business activities of competitors, their aims and intentions and strategy. The collected data are submitted to bank managers who make a decision on further activities.

The main components of marketing information system are:

- marketing management system
- marketing information system and
- marketing support system.

BMIS has to be oriented towards external environment in which the bank operates. All collected data are inputs that are stored in the database. After processing these data, MIS received data converted into information, in the form of reports and analysis. This information is used for decision-making by the management of the bank.

Each marketing information system has its advantages and limitations. Bank management must constantly keep in mind the possibilities of a marketing information system, as well as information which the system is capable of providing. It is wrong to believe that marketing information system can give answers to all questions.

Possibilities and limits of BMIS include (Ćurčić, 1997. p. 139.):

1. It provides guidance according to the long-term strategic goals.
2. It supports everyday decision-making.
3. It establishes the "communication" between marketing and back office
4. It allows managers to develop alternative future scenarios and assess their impact.
5. It automates numerous procedures and activities related to data security, which affects the cost.
6. It can serve as a warning for assistance with non-core services.
7. It supports decisions about allocation of resources needed to achieve specific marketing objectives.
8. It collects and stores valuable information and allows easy access to them, thus providing support to all employees in adequate and useful manner.
9. It assists in providing service to clients.
10. It allows monitoring of performance and application of corrective actions, and improved planning and control.

However, managers in banks have to be aware of the limitations of the marketing information system which are (Hanić, 2003):

1. It cannot replace manager capability of judgment.
2. It is not able to provide all necessary information which managers need to make infallible decisions.
3. It cannot be successful without the management support.
4. It cannot function without manager self-confidence.
5. It cannot be successful without adequate responsibility to manage the needs.

Systematic approach or concept is required in development of marketing information system. System approach or concept means (Ćurčić, 1997):

1. identification of data necessary for making marketing decisions;
2. supply of data from external and internal environment;
3. processing data with the help of quantitative analytical techniques;
4. possibility of data storage and
5. possibility of their repeated use of data.

When designing BMIS banks reconsider their size, diversity, core business, and structure.

Modern marketing information system is based on the use of computers and consists of hardware, software, databases, programmed and creative processes and the people who use it. The system uses historical data, but it is focused on the future. Research about the application of system in the US banks shows that they use their marketing information systems at all levels of decision-making and in all functions of banks. Data are continuously collected from the external environment, as well as from internal environment. Thus, the bank is capable of responding to changes in the environment at any moment, which is very important from the

aspect of decision-making and execution of marketing plans and corrective actions of the bank plans.

Planning process of data processing systems should be in accordance with the business and marketing goals of the bank, its organization and the needs of the market. However, it often happens that the data processing system plan is considered separately from the business planning and marketing strategy of the bank, which can pose a problem.

### ***Marketing intelligence***

Marketing Intelligence (MI) is a component of the marketing information system that provides data on events in internal and external environment. Marketing intelligence system is a set of procedures and sources which bank management use to obtain everyday information about developments in the marketing environment (Kotler & Keller, 2009). Data is collected through interviews with clients, monitoring of social groups, e-mailing lists, Facebook, YouTube, Twitter, etc.

MI is a process of acquiring and analyzing information needed to understand the market (both existing and potential clients); to determine the current and future needs and desires, attitudes and behavior of customers; and to assess changes in the business environment that may influence the size and nature of the financial markets in the future (Cornish, 1997, p. 147). MI is a process of acquiring, formatting and maintenance of key information about customers and potential clients.

The purpose of MI is to ensure that Bank policies are implemented based on the thorough understanding of the markets in which the bank operates. Communication with external environment provides additional insights outside of the data analysis. MI helps in obtaining a clearer picture about the possibility of development, enabling the bank's management to understand better not only what is happening but also why.

MI collects first-hand information. This information differs from the information in the reports, research and other publications: it is more straightforward, more focused on the key factors and therefore less absolute.

Through application of MI banks benefit from building credible contacts with clients. The primary method of using MI represents the collection of information through bilateral meetings at the premises of the bank or its customers, complemented by phone calls and group discussions. The records of information collected at these meetings are the basic data processed by MI, which are important for the mission of the Bank.

### ***Marketing database in banks***

One of the tasks of managers in the banking sector is to constantly collect customer information. The collected data is stored in marketing databases. These details include names, addresses, telephone numbers, past transactions. These data are collected in banks through direct contact with clients or through contact centers.

Marketing statisticians use data mining, to extract necessary information about clients, trends and segments through cluster analysis. Thus collected samples are then sorted into groups according to certain attributes, which enables automatic interaction, predictions through application of model and neural networking.

The most commonly used BMIS for support, implementation and business improvement in the banking sector are MIS (Marketing information system), OLTP (online transaction processing), transaction processing systems, CRM (Customer Relationship Management), ERP (Enterprise Resource Planning), SCM (supply Chain Management), EDMS (Electronic Document Management System), and Risk Management Systems.

Application used in banks systems can be divided into two groups (Rui, 2010):

1. **Operating (transaction) information system** - software solutions that are used primarily to support daily business operations of the bank. This software solution allows everyday recording and processing of data created in banking operations and collection of data and information for routine business operations.
2. **Control (analytical) information system** - software that can support management in making business decisions.

Management information systems of the bank are an upgrade of transaction systems. Data is gathered from various sources, filtered, transformed, grouped, and entered into the analytical database.

Analytical systems built over the analytical database are based primarily on intelligent business systems (Data Mining, OLAP, Reporting and similar tools) which are more advanced in terms of analytical features compared to other similar technologies.

## ***CONCLUSION***

The banking sector has to invest great efforts and resources in the global market in order to found new sources of income and capital and thereby strengthen its competitiveness. Bank of the 21 century does not base its business on their traditional core operations such as deposits and loans, but also relies on modern products and services such as financial leasing, financial consulting international factoring and forfeiting, e-banking and m-banking, custody operations, etc. In modern globalized environment, it is considered that the main problem for business is no longer attracting new clients but retain the existing ones.

An important assumption in the modern banking is the implementation and the development of banking marketing information system based on automatic data processing which is supported by modern information and communications technology. This tool provides a fast, efficient and secure management information system based on the advanced computer and communication technologies, and application-software solutions, which represent a strategic investment with long-term effects.

Marketing information system of the bank offers numerous benefits to customers and banks as well as to exporters because it allows making rational business decisions.

It can be concluded that marketing research is a necessity in the banking sector, as it affects the strategic choice and decisions about the bank's performance in the target market in the highly competitive business environment.

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## **PUBLIC SECTOR WAGE PREMIUM IN SERBIA: EVIDENCE FROM SILC DATA**

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Dragica Jovancevic<sup>20</sup>

### **ABSTRACT**

*In many European countries, employees in the public sector have higher average wages than workers in the private sector. This difference can partially be explained by better characteristics of the workers in the public sector, such as higher level of education or more work experience. However, previous research shows that even after we control these characteristics, the public sector pays higher wages i.e. that, in many European countries, there is a public sector wage premium. In other words, workers in the public sector earn more than the workers in the private sector, for the "same" job. Historically, in Serbia, public sector wage premium went from significantly negative, i.e. higher wages in the private sector (in 1995), to moderately positive premium (in 2008).*

*This paper aims to assess the wage gap between the public and private sector in Serbia, using Survey on Income and Living Conditions (SILC) data from 2013 and the wage decomposition methodology. In addition to providing new data on the gap in wages and public sector premium in Serbia, this paper aims to provide a better understanding of how different characteristics of the workers in the private and public sector affect the gap in wages.*

*Results show that in Serbia, in 2013, average hourly wage in the public sector was by 33.4% higher than in the private sector. As public sector workers have higher levels of education and are more likely to work in better paid jobs than workers in the private sector, the estimated value of the public sector wage premium is 17.2%. The estimated value of the public sector wage premium in Serbia is relatively high, when compared to the other European countries.*

**Key words:** *Public Sector Wage Premium, Wage Differential, Survey on Income and Living Conditions, Serbia*

**JEL Classification:** *J31, J54, J45*

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## **INTRODUCTION**

In many European countries, employees in the public sector have, on average, higher wages than workers in the private sector (European Commission, 2014). This difference between the private and the public sector can be partly explained by better characteristics of workers in the private sector, such as higher levels of education, more work experience, or a job in managerial position (de Castro, 2013). Since these characteristics are usually associated with higher levels of income, better characteristics of public sector workers (partially) "justify" the differences in earnings between the sectors.

However, the differences in the labour market characteristics often cannot explain the entire gap in wages between the public and private sector. The studies which use micro-data sets to statistically control for the differences in characteristics, show that the "same" work (in developed countries) is paid more in the public sector, i.e. that there is a positive public sector wage premium.

On the other hand, there are studies which show that salaries can be higher in the private sector, i.e. which show that the public sector premium is negative (European Commission, 2014). This trend is common in countries that are in transition from a socialist to a market economy. However, as the transition progresses, the advantage of the private sector is reduced, or the wages in the public sector to become higher than the wages in the private sector (Lausev, 2014). This was also the case in Serbia, where public sector wage premium was distinctly negative at the beginning of the transition (28% in 1995). During the transition years, the advantage of the private sector lowered and at the beginning of 2000's it changed to positive premium for working in the public sector (in 2008, according to Lausev, 2012).

The issue of the public sector wage premium is of particular importance in recent years, due to the effects of the economic crisis and the need to reduce public expenditure in many countries. Reduction of salaries in the public sector is considered less harmful to the economic growth than the reduction of other items of the public expenditure (de Castro, 2013, p. 3), and higher earnings in the public sector are taken as an argument that the reduction in earnings is the effective way of reducing expenditures.

The aim of this paper is to assess the wage gap between the public and private sectors in Serbia, using micro data from the Survey on Income and Living Conditions (SILC) from 2013 and the methodology of earnings decomposition (Blinder, 1973; Oaxaca, 1973). In addition to providing new data on the gap in wages between the sectors, this paper aims to provide an understanding of how different structure of workers in the private and public sectors affect the public sector wage premium.

## ***BRIEF OVERVIEW OF THE RESEARCH ON THE GAP IN WAGES BETWEEN THE PUBLIC AND PRIVATE SECTORS***

Research dealing with the assessment of the gap in wages between the public and private sectors can be based on the macroeconometric or microeconometric methods (Lausev, 2014). Macroeconometric methods are based on macro data of total cost of the private and public sector wages and the number of employees in these companies. This information is usually publicly available for many years. However, these data usually do not include the detailed data on workers' characteristics, so it is not possible to take into account the differences in these characteristics, and it is therefore not possible to estimate that the "true gap" in wages between the sector, i.e. the public sector wage premium.

On the other hand, microeconometric studies are based on individual data, so the detailed data on workers' characteristics are available, and the differences in these characteristics can be included into analysis. Since the focus of this paper is on the estimation the public sector wage premium, this review will include only microeconometric studies of the gap in wages between the sectors, in order to provide insights into recent years' trends.

The European Commission (2014) study, which was based on the Structure of Earnings Survey (SES) data, showed that, in 2010, on average, the wages were higher in the public sector than in the private sector, in most EU countries (except in Denmark, Finland, Slovakia and Hungary). Furthermore, the results show that the differences in wages may partly be explained by the better characteristics of public sector workers, and that when they are taken into account, the public sector wage premium is significantly lower, and that for some countries it is negative, i.e. the wages are, *ceteris paribus*, higher in the private sector.

Roughly divided, for the countries of Southern (Cyprus, Spain, Greece, Italy and Portugal) and Western Europe (Austria, Belgium, Germany, Ireland, Luxembourg and Slovenia, but not for France) there is a positive premium for working in the public sector, while for the countries of Central and Eastern (Bulgaria, the Czech Republic, Estonia, Hungary, Latvia and Slovakia, but not for Poland) and Northern Europe (Finland and Denmark) the wages are, *ceteris paribus*, higher in the private sector (European Commission, 2014).

Similar results were found in a study which uses the data from Survey on Income and Living Conditions (EU-SILC) for the period 2004 - 2007 (Giordano et al, 2011). On average, wages in the public sector in the countries of Western and Southern Europe (Austria, Belgium, Germany, Spain, France, Greece, Ireland, Italy, Portugal and Slovenia) were higher than in the private sector. In addition, although the differences in the characteristics of workers explain part of the gap in salaries, estimated premium of the public sector is still positive.

Laušev (2014) gives an excellent overview on the research that dealt with the wage gap between the public and private sectors in the countries of Eastern Europe (i.e. the countries in transition) using different data sources from the period from 1992 to 2004. The main conclusion of this study is that the wages for "same work"

in the public sector were significantly lower than in the private sector at the beginning of the transition, but that this advantage of the private sector disappears when reaching the maturity of economic transition. In addition, for some countries at the end of the transition premium public sector becomes positive, indicating a convergence between trends in developed countries and countries in transition.

A large part of the empirical work on the gap in wages between the sectors is dedicated to comparison of the gap between the genders and level of education. In general, the results for the developed economies indicate that the public sector premium is higher for women and workers with lower levels of education (Giordano et al, 2011).

In the paper already discussed, Giordano et al, (2011), use the data from the EU-SILC (2004-2007) and show that the public sector wage premium is positive and above average for people with low education, while for the workers with high level of education, the premium is negative. In addition, the premium of the public sector is higher for women than for men in all countries, although in some countries this difference was not statistically significant (Giordano et al., 2011).

On the other hand, according to European Commission report (European Commission, 2014) on average, in the European Union, the men have positive public sector wage premium, while there are no significant differences between public and private sector in female wages. In addition, the results indicate that there is a positive public sector wage premium, but not only at low levels of education, but also at high, indicating the harmful effects of taking high-quality workforce from the private sector. The authors suggest that these results are surprising and contradicted the findings of previous research.

On the other hand, the results of the same survey indicate that there are large differences between the countries of the European Union in this respect, and that, in some countries, women have a higher public sector wage premium than men, while in other countries, men have a higher positive or lower negative public sector wage premium than women. This may be the result of different trends in developed economies and countries in transition, where women on average have the same level of negative public sector premium as well as men (Lausev, 2014).

In one of the first studies in Serbia, Jovanovic and Lokshin (Jovanovic, Lokshin, 2003, according to Lausev, 2012), found a negative public sector wage premium of 9.4% for men and 4% for women using data from the Labour Force Survey from 2000. The next significant study, also using the data from Labour Force Survey, showed that between 1995 and 2003, the negative premium of the public sector decreased from 28.5% to only 8% (Krstić et al., 2007, according to Lausev, 2012, p.9). Finally, between 2004 and 2008, the public sector wage premium, firstly reached zero (in 2004) and then became positive (in 2008) for workers with low or medium level, while for workers with high levels of education, it was first negative (2004) and then positive (in 2008). In addition, positive public sector premium was significantly higher for workers with low levels of education than for those with higher levels of education (Lausev, 2012, p. 21).

## METHODOLOGY AND DATA

*Public private wage gap* represents a simple difference in mean hourly wages in the public and private sectors, expressed as a percentage of hourly wages in the private sector. This gap can also be calculated as a difference between the average natural logarithms of hourly wages or as a regression coefficient of in an earnings equation, in which the dummy variable for the sector is the only predictor (see more detail on Mincer earnings equation further in the text).

As previously explained, the gap in the wages between the public and private sector can partially be explained by differences in the labour market characteristics of workers in the public and private sectors, such as education, occupation, etc. Therefore this gap is called the *unadjusted wage gap*, since it does not account for the differences in the workers characteristics.

When we statistically control for these differences, so the gap represents the differences in wages between the sectors for the same job, we call this gap the *adjusted public-private wage gap*, or the *public sector wage premium*. To assess the *public sector wage premium* we need to include other variables relevant to the wage size (such as education, work experience, etc.) into the wage equation. Then the regression coefficient on the dummy variable indicating the public or private sector employment is an estimate of the public sector wage premium.

We can also calculate the unadjusted and adjusted wage gaps by using the Blinder-Oaxaca decomposition. In the terminology of the Blinder-Oaxaca decomposition, the total unadjusted gap in earnings between the public and private sector can be divided into *explained* part and *unexplained* part. While the explained part of the gap is the part due to the differences in characteristics between the workers in the sectors, the unexplained part of the gap is due to differences in returns for the different characteristics at the labour market (e.g. if the public sector puts a higher value to workers' higher level of education). It is this second, unexplained part of the difference in wages that represents *the public sector wage premium*.

To explain the Blinder-Oaxaca decomposition we start from the simple (Mincer) wage equation:

$$y_i = \ln(Y_i) = \alpha + \beta P_i + X_i' \gamma_k + \varepsilon_i, \quad (1)$$

In which the dependent variable, log wages are regressed on the vector of individual and job characteristics -  $X_i$ , such as education, work experience, occupation and sector of activity (Mincer, 1974). Since the focus of this paper is to estimate the public sector wage premium, the variable that indicates the work in the public or private sector was singled out and presented as separate variable ( $P_i$ ), and the coefficient next to this variable ( $\beta$ ) indicates the public sector wage premium. As previously stated, in a situation in which other relevant variables ( $X_i$ ) are omitted, the coefficient  $\beta$  is reduced to a simple percentage difference between the wages in the public and private sectors. i.e. unadjusted pay gap.

As previously mentioned, Blinder-Oaxaca decomposition splits the unadjusted gap in wages between the public and private sector to explained and unexplained part of the gap (Blinder 1973, Oaxaca, 1973). Blinder-Oaxaca decomposition is based on the separate estimations of the Mincer wage equation for the public and private sectors:

$$y_i^P = X_i^{P'} \theta_k^P + \varepsilon_i^P, \text{ for the private sector} \quad (2a)$$

$$y_i^J = X_i^{J'} \theta_k^J + \varepsilon_i^J, \text{ for the public sector} \quad (2b)$$

where  $X_i^{P'}$  and  $X_i^{J'}$  are the vectors of the individual and job characteristics of the workers in the public and private sector respectively,  $\theta_k^P$  i  $\theta_k^J$  are the respective slope coefficients, and  $\varepsilon_i^P$  i  $\varepsilon_i^J$  are the respective error terms from the wage equations for the public and private sector. If we assume that the expected value of the errors in the model is equal to zero, the difference in expected value of wages in the private and public sectors can be written as:

$$E(y_i^J) - E(y_i^P) = E(X_i^{J'}) \theta_k^J - E(X_i^{P'}) \theta_k^P \quad (3)$$

After the coefficients are estimated via ordinary least squares, the difference in the average wages between the public and private sectors (unadjusted pay gap) can be written as:

$$\bar{y}^J - \bar{y}^P = \bar{X}^{J'} \hat{\theta}_k^J - \bar{X}^{P'} \hat{\theta}_k^P \quad (4)$$

After sorting the equation 4 can be rewritten as:

$$\bar{y}^J - \bar{y}^P = (\bar{X}^J - \bar{X}^P)' \hat{\theta}_k^J + \bar{X}^{P'} (\hat{\theta}_k^J - \hat{\theta}_k^P) \quad (5)$$

The last equation shows the basic Blinder-Oaxaca decomposition: the gap in wages is a sum of the explained and the unexplained part of the gap (i.e. the public sector wage premium). The estimate of the explained part of the gap is based on the difference between the average characteristics of the workers from the public and private sectors ( $\bar{X}^J - \bar{X}^P$ ), weighted by the regression coefficients from the public sector wage equation ( $\hat{\theta}_k^J$ ). On the other hand, estimation of the unexplained part of the gap is based on the difference between the slope coefficients from the public and private sectors earning equation ( $\hat{\theta}_k^J - \hat{\theta}_k^P$ ), weighted by the average workers' characteristic in the private sector ( $\bar{X}^P$ ) (Jann, 2008).

In addition, Blinder-Oaxaca decomposition enables the isolation of the effect of each variable on both explained and unexplained part of the gap. Therefore, it is possible, for example, to assess which part of the gap in earnings between the public and private sectors is due to differences in the level of education, and which is due to differences in the average work experience (Jann, 2008).

## ***DATA AND SAMPLE***

To estimate the public sector wage premium we use micro-database from the Survey on Income and Living Conditions (SILK) from 2013. The survey, conducted by the Republic Statistical Office of Serbia (SORS), provides nationally and regionally representative data on income, poverty and living conditions for Serbia and is the most important instrument for the comparative assessment of poverty in the European Union (according to EUROSTAT), as well as in Serbia.

The sample included 6,501 households, and data were collected at both the household and the individual level. Data include weights, provided by SORS, which are used to correct estimates of descriptive statistics and econometric estimates for the likelihood that a household is selected in a sample from the population of Serbian households.

The sample for the regression analysis consists of 3,931 employees (2,052 employees in the public and 1,879 employees in the private sector) for which information on wages was available. The sample includes only people in the age group 15-64. The analysis did not include self-employed and unpaid family members, informal employment workers, as well as the employees who do not receive a salary at work. Additionally, in accordance with the recommendations from the literature (e.g. European Commission, 2014), we excluded from the analysis the employees in the agricultural sector, as well as military personnel.

The main independent variable is based on ownership question: "What is the form of property in which you work?" which has four possible answers: "Not registered", "Private registered", "Public / state" and "Other ( social, mixed, etc.)". The analysis involved only those who answered "Private registered" and "Public / state". The main dependent variable, as already mentioned, is the natural logarithm of net hourly wages.

## ***RESULTS***

According to the SILC data, in May 2013, the average monthly wage in the public sector was by 22.8% higher than wages in the private sector (Table 1). The difference between hourly wages was higher, and amounted to 33.4%, as the workers in the private sector, on average work about 4 hours longer per week than workers in the public sector.

*Table 1: The difference in the average monthly wages, average hours worked and average earnings per hour of work in the public and private sectors*

|                | Average monthly wage (in RSD) | Average hours worked | Average hourly wage (in RSD) |
|----------------|-------------------------------|----------------------|------------------------------|
| Private sector | 34,993                        | 44.1                 | 172.7                        |
| Public sector  | 42,967                        | 40.5                 | 230.5                        |
| Difference (%) | 22.8%                         | -8.0%                | 33.4%                        |

*Source: Own calculation based on the SILC 2013 data. Note: The average hourly wage is calculated as the ratio of monthly earnings and weekly hours worked and multiplied by 23/5 (number of working days in the month divided by the number of days in the working week).*

Table 2 shows the estimation of five different specifications Mincer wage equation (equation 1). Table 2 presents only the estimated coefficients for the variable denoting the work in the private or public sector, while the full specification is in Table A1 in the Appendix. All the coefficients have expected signs: wages are higher for the higher levels of education, work experience and age; they are higher for men than for women; they are the highest for Managers, then for Professionals, Technicians and Clerks, slightly lower for Service and sales workers, Craft and trades workers, Plant and machine operators and the lowest for the Elementary occupations; the wages are higher in industry, compared to services; for the permanent jobs, compared to temporary; higher in cities, and in Belgrade, compared to other regions.

*Table 2: Mincer earnings equations - estimation of the gap between wages in the public and private sectors*

| Variables in the model           | S0       | S1       | S2       | S3       | S4       |
|----------------------------------|----------|----------|----------|----------|----------|
| Public sector                    | 0.334*** | 0.207*** | 0.214*** | 0.161*** | 0.172*** |
| Education and work experience    |          | x        | x        | x        | x        |
| Gender and age                   |          |          | x        | x        | x        |
| Job characteristics <sup>1</sup> |          |          |          | x        | x        |
| Region and type of settlement    |          |          |          |          | x        |
| Sample size                      | 3.931    | 3.931    | 3.931    | 3.931    | 3.931    |

*Source: Own calculation based on the SILC 2013 data Notes: The table A1, with the estimated coefficients and standard errors is attached in Appendix.*

*1Occupation, sector of activity (industry and services), type of contract (permanent or temporary) \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$*

The coefficient in the specification S0, where the sector is the only variable in the equation, as stated before, is the unadjusted wage gap in wages between the public and private sectors. The coefficient indicates that public sector wages are on average by 33.4% higher, compared to the private sector. This is the same value that is obtained in the Table 1, as the percentage difference between the hourly wages in the private and public sector.

Specifications S1 to S4 represent the wage gap when adjusted for differences in the labour market characteristics. When we include education and work experience in the regression equation, the gap in wages between the sectors shrinks to 20.7%. In other words, workers in the public sector earn 20.7% higher hourly wages than the workers of the same educational level and work experience in the private sector.

The public sector wage premium does not change significantly when sex and age are included in the wage equation (column S2). On the other hand, when job characteristics such as occupation, activity sector (industry and services) and the type of contract are controlled for, the difference between the wages further shrinks to 16.1% (column S3). Finally, when we include the effects of the region and type of settlement, we get a final assessment of the public sector wage premium of 17.2%. In other words, public sector workers earn, on average, 17.2% higher earnings than private sector workers who are of the same educational level and work experience, gender and age, whose work has the same job characteristics (in terms of the occupation, sectors of activity and type of contract), in the same region and type of settlement.

Estimated value of the regression coefficients from Mincer equations (Table 2) can be summed up in the basic Blinder-Oaxaca decomposition (Table 3). The estimations are calculated based on the equation 5. The difference in average hourly wages between the public and private sector is 33.4%. Almost half of the gap (i.e. 48.5% of the difference: 16.2% from 33.4%) in wages between sectors can be explained by better labour market characteristics of the public sector workers (higher education level, more work experience and as they work in better paid occupations). The remaining, unexplained part of the gap represents the public sector wage premium, which amounts to 17.2%. This difference represents different "rewards" for the employees in the public and private sector for doing the same work.

*Table 3: Blinder-Oaxaca decomposition*

|  |       |
|--|-------|
| Private sector (average log hourly wage) | 5.027 |
| Public sector (average log hourly wage)  | 5.361 |
| Unadjusted difference in wages           | 0.334 |
| Explained part of the gap                | 0.162 |
| Unexplained part of the gap              | 0.172 |

*Source: Own calculation based on the SILC 2013 data*

As mentioned above, public sector workers have better labour market characteristics than workers from the private sector, and this difference in

characteristics explains almost half of the difference in their earnings. Table 4 summarizes the basic differences in these characteristics that significantly affect the difference in wages. In the table, labour market characteristics are divided to those that "increase" and those which "reduce" the wages, in the sense that workers with these characteristics, on average, have a higher or lower wages. Table was formed on the basis of detailed Blinder-Oaxaca decomposition (Tables A2 and A3 in the appendix), as well as the results from the comparison of the characteristics of the public and private sector workers (Table A4 in the appendix).

Firstly, the majority of the differences in wages can be explained by differences in occupations. This is primarily due to greater participation of Professionals (ISCO 2 group, 31.5% in the public versus only 10% in the private sector), as well as Technicians (ISCO 3 group, 22.4% versus 15.1%) in the public than in the private sector (Table A4 in the Appendix). Since these occupations, on average, are better paid, part of the differences in wages is due to the fact that work in the public sector requires more high-skilled occupations.

*Table 4: Detailed Blinder-Oaxaca decomposition - summary*

|   | ... which "increase" their wages  | ... which "decrease" their wages  |
|---|---|---|
| Labour market characteristics of the public sector workers... | <ul style="list-style-type: none"> <li>- More frequently working in better-paid occupation</li> <li>- Higher level of education</li> <li>- More working experience</li> <li>- More permanent contracts</li> <li>- More frequently from urban areas</li> </ul> | <ul style="list-style-type: none"> <li>- More women</li> <li>- More workers in the services sector</li> </ul> |

*Source: Own calculation based on the SILC 2013 data. Note: Full estimation of the coefficients from the Blinder-Oaxaca decomposition is presented in the Table A2 in the Appendix*

Furthermore, the public sector is also characterised in a higher share of employees with college or university education (43.7% of employees in the public versus the 23.8% of employees in the private sector), as well as a longer work experience in public sector employment (average employment experience in the public sector is 19 years, while in the private 14.3 years). Public sector workers also have a larger share of the permanent contracts, (91.4% versus 79.5% in the private sector), which show higher wages than temporary contracts; as well as greater participation of employees in urban areas (73.8% versus 68.5% in the private sector), where the wages are generally higher.

On the other hand, the public sector is characterized by two features that reduce the wages. The public sector employs more women, and has a higher share of workers in the service sector, compared to industry (Table A4). As women on average earn less than men, and as the work in the service sector is paid less than

work in the industry, these characteristics "reduce" the average wage in the public sector. In other words, if the public and private sector would have the same participation of women and share of services workers, *ceteris paribus*, the unadjusted wage gap between the public and private sectors would be even higher.

Table 5 shows the estimated value of the public sector wage premium separately on sub-samples by sex and age. Analysis of the separate sub-samples of men and women suggests that, on average, the unadjusted wage gap between the sectors is higher for women than for men. Women in the public sector have on average 36.5% higher earnings than women in the private sector, while for men this difference amounts to 31.8%. However, the wage gap between the public and private sectors for women can be explained by the labour market characteristics to the greater extent than for men. This is primarily due to higher participation of Professionals (ISCO 2 group) in the public sector for women. When controlling for these and all other differences between the sectors in individual and job characteristics (listed in Table 2), estimated public sector wage premium is significantly lower for the women than for the men. For the women, the premium amounts to 10.6%, while for the men it is 20.3%.

On the other hand, the analysis by different age groups indicates that the trends in all the age groups are similar. The largest unadjusted public private wage gap is among young workers (15-29 years) which is estimated at 33.8%, while the gap is somewhat lower in two older age groups (30/44 and 45/64), approximately 31%. For all age groups, explained the value of the work gap is estimated at about 13 to 14%. Since the explained part of the gap is the same for all the groups, the order of the age groups by the size of the public sector wage premium remains unchanged. It is the highest for the youngest age group, where it stands at 20.9%, while for the older groups it stands on about 17%.

*Table 5: Blinder-Oaxaca decomposition by gender and age*

|                  | Sex   |       | Age   |       |       |
|------------------|-------|-------|-------|-------|-------|
|                  | Women | Men   | 15-29 | 30-44 | 45-64 |
| Private sector   | 4.966 | 5.075 | 4.901 | 5.055 | 5.078 |
| Public sector    | 5.331 | 5.393 | 5.239 | 5.364 | 5.384 |
| Difference       | 0.365 | 0.318 | 0.338 | 0.309 | 0.306 |
| Explained part   | 0.259 | 0.115 | 0.130 | 0.140 | 0.138 |
| Unexplained part | 0.106 | 0.203 | 0.209 | 0.169 | 0.168 |
| Sample size      | 1,869 | 2,062 | 608   | 1,793 | 1,530 |

*Source: Own calculation based on the SILC 2013 data. Note: Full estimation of the coefficients from the Blinder-Oaxaca decomposition is presented in the Table A5 in the Appendix.*

A separate analysis by educational level points to several interesting trends (Table 6). Contrary to previous research, the unadjusted gap in wages is the lowest for the

workers with the primary level of education. The gap is estimated at 6% and it is not statistically significant. However, the sample for the estimation of the gap at this level of education is relatively small (total of 344 employees in the public and private sector), so it is possible that with a larger sample and we would get different results.

Secondly, the unadjusted gap in wages between the private and public sectors is higher among employees who have completed secondary education - 26.8%, than for those who have completed college or university - 23.9%. The explained part of the gap is larger at the tertiary level of education, so the differences in the public sector wage premium are even more pronounced. The estimated adjusted wage gap between the public and private sector, i.e. the public sector wage premium is 20.6% for the secondary and 13.1% for the tertiary level of education.

*Table 6: Blinder-Oaxaca decomposition by education level*

|                    | Education level      |           |          |
|--------------------|----------------------|-----------|----------|
|                    | Primary or no school | Secondary | Tertiary |
| Private sector     | 4.827                | 4.921     | 5.397    |
| Public sector      | 4.887                | 5.189     | 5.637    |
| Difference         | 0.060                | 0.268     | 0.239    |
| Explained part     | 0.041                | 0.062     | 0.108    |
| Unexplained part   | 0.020                | 0.206     | 0.131    |
| <i>Sample size</i> | 344                  | 2,353     | 1,234    |

*Source: Own calculation based on the SILC 2013 data. Note: Full estimation of the coefficients from the Blinder-Oaxaca decomposition is presented in the Table A6 in the Appendix.*

## ***DISCUSSION AND CONCLUSIONS***

This paper aimed to estimate the public private sector wage gap in Serbia using the Blinder-Oaxaca decomposition and the data from the EU-SILC from 2013. Similar to the situation in many European countries (European Commission, 2014), the results show that hourly wages in the public sector in Serbia are higher than in the private sector (33.4%). A significant part of this difference can be explained by differences in the labour market characteristics between the workers in the sectors. Most importantly, public sector workers have, on average, higher levels of education and more work experience and they are more likely to work as Professionals or Technicians (occupations that are paid better than other) than workers in the private sector. When these differences in the characteristics are statistically kept constant, the value of the public sector wage premium is estimated at 17.2%. In other words, workers in the public sector have by 17.2% higher wages for doing the "same" job than the workers in the private sector.

The estimated value of the public sector wage premium in Serbia is high when compared to other European countries, since, according to the European Commission report (European Commission, 2014), higher public sector wage premium is present only in Ireland, Luxembourg and Cyprus. However, this comparison has to be made with caution, since the data analysed in the report and in this research are different (Structure of earnings survey vs. Survey on Income and Living Conditions).

The results also point to some interesting departures from the general trends in the literature, which suggest that the gap should be higher for women and people with low level of education (Giordano et al, 2011). However, recent research show that these conclusions are not uniform, so that on average, in the European Union, men have higher positive public sector wage premiums than women, and that the public sector premium occurs at all levels of education (European Commission, 2014). The differences might be due to the effects of the economic crisis, which could produce new trends of premium public sector by different groups, but also due to the fact that different data sources point to different conclusions. Our data suggest that, although the unadjusted wage gap is higher for women than for men, the estimated value of the public sector wage premium is higher for men. This occurs because the labour market characteristics explain the wage gap better for women than for men.

Historically, the estimated value of the public sector wage premium in this research indicates that, in Serbia, the gap in wages between the public and private sectors went through a full cycle: from significantly higher wages in the private sector before 2000 (maximum of about 28% in 1995), through zero and positive premium for working in the public sector (2004 and 2008, according to Lausev, 2012), to now extremely high value of the premium of the public sector in Serbia (17.2% in 2013), indicated by this research. This result is consistent with theoretical considerations on the gap in wages in the public sector in countries in transition, presented by Laušev (2014). The negative premium of the public sector from the initial transition period, after the country reaches its mature phase, approaches zero or becomes positive due to the fact that market mechanisms take primacy in determining the wages in the sectors (Lausev, 2014).

Wage gap between the public and private sector is an important question from the perspective of the public policy. Unequal wages of workers in the public and private sectors can cause distortions on the labour market, especially if one takes into account that a job in the public sector often also carries a higher degree of job security and benefits. The presence of the premium in wages in the public sector, with other, more favourable benefits, may lead workers to have strong preferences to work in the public sector, which means that less skilled labour remain to work in the private sector. Taking this into account, a precise estimate of the gap in wages between the public and private sectors, together with other analytical information provides a basis for decision-making on whether it can be justified to "save" part of the public expenses by reducing public sector wages.

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**APPENDIX***Table A1: Mincer wage equation*

| VARIABLES                               | S0       | S1       | S2        | S3        | S4        |
|---|----------|----------|-----------|-----------|-----------|
| <i>Public sector</i>                    | 0.334*** | 0.207*** | 0.214***  | 0.161***  | 0.172***  |
|   | (0.016)  | (0.016)  | (0.016)   | (0.016)   | (0.016)   |
| Primary (omitted)                       |          | -        | -         | -         | -         |
|   |          | -        | -         | -         | -         |
| Secondary                               |          | 0.208*** | 0.208***  | 0.103***  | 0.076***  |
|   |          | (0.023)  | (0.023)   | (0.024)   | (0.024)   |
| Tertiary                                |          | 0.687*** | 0.702***  | 0.313***  | 0.275***  |
|   |          | (0.026)  | (0.026)   | (0.034)   | (0.033)   |
| Work Experience                         |          | 0.007*** | 0.006***  | 0.006***  | 0.005***  |
|   |          | (0.001)  | (0.002)   | (0.002)   | (0.001)   |
| Gender (Female=1)                       |          |          | -0.130*** | -0.138*** | -0.141*** |
|   |          |          | (0.014)   | (0.014)   | (0.014)   |
| Age                                     |          |          | 0.020***  | 0.019***  | 0.019***  |
|   |          |          | (0.006)   | (0.005)   | (0.005)   |
| Age Squared                             |          |          | -0.000*** | -0.000*** | -0.000*** |
|   |          |          | (0.000)   | (0.000)   | (0.000)   |
| Senior officials and managers           |          |          |           | 0.711***  | 0.698***  |
|   |          |          |           | (0.049)   | (0.048)   |
| Professionals                           |          |          |           | 0.600***  | 0.575***  |
|   |          |          |           | (0.035)   | (0.034)   |
| Technicians and associate professionals |          |          |           | 0.366***  | 0.357***  |
|   |          |          |           | (0.025)   | (0.025)   |
| Clerks                                  |          |          |           | 0.296***  | 0.278***  |
|   |          |          |           | (0.030)   | (0.029)   |
| Service and sales workers               |          |          |           | 0.105***  | 0.110***  |
|   |          |          |           | (0.027)   | (0.026)   |
| Craft and trades workers                |          |          |           | 0.127***  | 0.141***  |
|   |          |          |           | (0.028)   | (0.027)   |
| Plant and machine operators             |          |          |           | 0.170***  | 0.187***  |
|   |          |          |           | (0.030)   | (0.030)   |
| Elementary occupations (omitted)        |          |          |           | -         | -         |
|   |          |          |           | -         | -         |
| Activity sector (Services=1)            |          |          |           | -0.072*** | -0.094*** |
|   |          |          |           | (0.018)   | (0.017)   |

*Note: Continued on the next page*

Table A1: Mincer wage equation – continued from the previous page

| VARIABLES                         | S0       | S1       | S2       | S3        | S4        |
|-----------------------------------|----------|----------|----------|-----------|-----------|
| <i>Public sector</i>              | 0.334*** | 0.207*** | 0.214*** | 0.161***  | 0.172***  |
|                                   | (0.016)  | (0.016)  | (0.016)  | (0.016)   | (0.016)   |
| Type of contract<br>(Temporary=1) |          |          |          | -0.066*** | -0.062*** |
|                                   |          |          |          | (0.021)   | (0.021)   |
| Settlement (urban = 1)            |          |          |          |           | 0.081***  |
|                                   |          |          |          |           | (0.014)   |
| Belgrade (omitted)                |          |          |          |           | -         |
|                                   |          |          |          |           | -         |
| Vojvodina                         |          |          |          |           | -0.095*** |
|                                   |          |          |          |           | (0.018)   |
| West Serbia                       |          |          |          |           | -0.131*** |
|                                   |          |          |          |           | (0.018)   |
| East Serbia                       |          |          |          |           | -0.157*** |
|                                   |          |          |          |           | (0.019)   |
| Constant                          | 5.027*** | 4.627*** | 4.309*** | 4.343***  | 4.409***  |
|                                   | (0.012)  | (0.025)  | (0.109)  | (0.101)   | (0.099)   |
| <i>Observations</i>               | 3,931    | 3,931    | 3,931    | 3,931     | 3,931     |
| R-squared                         | 0.108    | 0.331    | 0.349    | 0.433     | 0.455     |
| F                                 | 412.5    | 453.2    | 281.9    | 185.0     | 154.6     |
| P                                 | <0,001   | <0,001   | <0,001   | <0,001    | <0,001    |
| Adjusted R-squared                | 0.107    | 0.330    | 0.348    | 0.431     | 0.452     |

Source: Own calculation based on the SILC 2013 data. Notes: Robust standard errors in parentheses \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table A2: Blinder-Oaxaca decomposition – Grouped effects

| VARIABLES                         | Explained part |         | Unexplained part |         |
|-----------------------------------|----------------|---------|------------------|---------|
| Education                         | -0.040***      | (0.006) | -0.072           | (0.046) |
| Work Experience                   | -0.024***      | (0.007) | -0.041           | (0.050) |
| Gender (Female=1)                 | 0.011***       | (0.003) | -0.000           | (0.014) |
| Age                               | 0.000          | (0.008) | 0.002            | (0.217) |
| Occupation (ISCO 1-digit)         | -0.111***      | (0.010) | -0.100**         | (0.043) |
| Activity sector (Services=1)      | 0.012***       | (0.003) | 0.032            | (0.026) |
| Type of contract<br>(Temporary=1) | -0.007***      | (0.003) | 0.007            | (0.006) |
| Settlement (urban = 1)            | -0.004***      | (0.001) | -0.006           | (0.019) |
| Regional effects                  | 0.000          | (0.002) | -0.006           | (0.022) |
| Constant                          |                |         | 0.012            | (0.204) |
| Observations                      | 3,931          |         | 3,931            |         |

Source: Own calculation based on the SILC 2013 data. Notes: Robust standard errors in parentheses \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table A3: Blinder-Oaxaca decomposition – detailed effects

| VARIABLES                               | Explained part |         | Unexplained part |         |
|---|----------------|---------|------------------|---------|
|   |                |         |                  |         |
| Primary education                       | -              | -       | -                | -       |
| Secondary education                     | 0.015***       | (0.005) | -0.030           | (0.027) |
| Tertiary education                      | -0.055***      | (0.008) | -0.042*          | (0.023) |
| Work Experience                         | -0.024***      | (0.007) | -0.041           | (0.050) |
| Gender (Female=1)                       | 0.011***       | (0.003) | -0.000           | (0.014) |
| Age                                     | -0.100***      | (0.027) | -0.093           | (0.424) |
| Age Squared                             | 0.100***       | (0.027) | 0.095            | (0.225) |
| Senior officials and managers           | -0.004         | (0.005) | -0.005           | (0.004) |
| Professionals                           | -0.124***      | (0.011) | 0.010            | (0.015) |
| Technicians and associate professionals | -0.026***      | (0.005) | -0.020**         | (0.010) |
| Clerks                                  | -0.003         | (0.003) | -0.009*          | (0.006) |
| Service and sales workers               | 0.018***       | (0.004) | -0.038***        | (0.009) |
| Craft and trades workers                | 0.017***       | (0.004) | -0.025***        | (0.007) |
| Plant and machine operators             | 0.012***       | (0.003) | -0.013**         | (0.005) |
| Elementary occupations (omitted)        | -              | -       | -                | -       |
| Activity sector (Services=1)            | 0.012***       | (0.003) | 0.032            | (0.026) |
| Type of contract (Temporary=1)          | -0.007***      | (0.003) | 0.007            | (0.006) |
| Settlement (Urban = 1)                  | -0.004***      | (0.001) | -0.006           | (0.019) |
| Belgrade                                | -              | -       | -                | -       |
| Vojvodina                               | -0.005***      | (0.002) | -0.000           | (0.009) |
| West Serbia                             | -0.000         | (0.002) | -0.000           | (0.009) |
| East Serbia                             | 0.005**        | (0.002) | -0.006           | (0.007) |
| Constant                                |                |         | 0.012            | (0.204) |
| Observations                            | 3,931          |         | 3,931            |         |

Source: Own calculation based on the SILC 2013 data. Notes: Robust standard errors in parentheses \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table A4: Comparison of workers characteristics in the public and the private sectors

| VARIABLES                               | Public sector mean | Private sector mean | Difference | T test  |
|---|--------------------|---------------------|------------|---------|
| Primary education                       | 0.078              | 0.084               | -0.009     | -0.952  |
| Secondary education                     | 0.485              | 0.677               | -0.192***  | -12.533 |
| Tertiary education                      | 0.437              | 0.238               | 0.201***   | 13.89   |
| Work Experience                         | 19.016             | 14.299              | 4.534***   | 13.811  |
| Gender (Female=1)                       | 0.521              | 0.441               | 0.078***   | 4.913   |
| Age                                     | 43.519             | 38.296              | 4.989***   | 15.272  |
| Age Squared                             | 0.042              | 0.035               | 0.008      | 1.302   |
| Senior officials and managers           | 0.315              | 0.100               | 0.219***   | 18.19   |
| Professionals                           | 0.224              | 0.151               | 0.070***   | 5.703   |
| Technicians and associate professionals | 0.102              | 0.092               | 0.007      | 0.778   |
| Clerks                                  | 0.093              | 0.254               | -0.161***  | -13.406 |
| Service and sales workers               | 0.069              | 0.187               | -0.118***  | -10.828 |
| Craft and trades workers                | 0.059              | 0.124               | -0.069***  | -7.401  |
| Plant and machine operators             | 0.096              | 0.056               | 0.044***   | 5.124   |
| Elementary occupations (omitted)        | 0.813              | 0.684               | 0.132***   | 9.459   |
| Activity sector (Services=1)            | 0.086              | 0.205               | -0.119***  | -10.607 |
| Type of contract (Temporary=1)          | 0.738              | 0.685               | 0.059***   | 3.961   |
| Settlement (Urban = 1)                  | 0.314              | 0.297               | 0.009      | 0.658   |
| Belgrade                                | 0.235              | 0.285               | -0.051***  | -3.644  |
| Vojvodina                               | 0.243              | 0.244               | 0.004      | 0.263   |
| West Serbia                             | 0.207              | 0.174               | 0.038***   | 2.923   |
| East Serbia                             | 0.078              | 0.084               | -0.009     | -0.952  |
| Observations                            | 1,879              | 2,052               |            |         |

Source: Own calculation based on the SILC 2013 data. Notes: Robust standard errors in parentheses \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table A5: Blinder-Oaxaca decomposition by gender and age

|                      | Sex                  |                      | Age                 |                      |                      |
|----------------------|----------------------|----------------------|---------------------|----------------------|----------------------|
|                      | Women                | Men                  | 15-29               | 30-44                | 45-64                |
| Education            | -0.040***<br>(0.007) | -0.033***<br>(0.008) | -0.027**<br>(0.010) | -0.049***<br>(0.009) | -0.041***<br>(0.010) |
| Age                  | 0.000<br>(0.000)     | 0.000<br>(0.000)     | -                   | -                    | -                    |
| Work History (years) | -0.021***            | -0.019***            | -0.003              | -0.009***            | -0.001               |

|                           |           |           |           |           |           |
|---------------------------|-----------|-----------|-----------|-----------|-----------|
|                           | (0.007)   | (0.005)   | (0.003)   | (0.003)   | (0.001)   |
| Female                    | -         | -         | 0.015**   | 0.009**   | 0.012***  |
|                           | -         | -         | (0.007)   | (0.004)   | (0.004)   |
| Occupation (ISCO 1-digit) | -0.192*** | -0.060*** | -0.122*** | -0.094*** | -0.112*** |
|                           | (0.018)   | (0.011)   | (0.025)   | (0.014)   | (0.018)   |
| Sector (Services=1)       | 0.009**   | 0.011***  | 0.016**   | 0.010***  | 0.017***  |
|                           | (0.004)   | (0.003)   | (0.007)   | (0.003)   | (0.006)   |
| Contract (Temporary=1)    | -0.010**  | -0.007**  | 0.003     | -0.006*   | -0.007    |
|                           | (0.004)   | (0.004)   | (0.004)   | (0.003)   | (0.006)   |
| Settlement (Urban=1)      | -0.002*   | -0.005**  | -0.006    | -0.001    | -0.008**  |
|                           | (0.001)   | (0.002)   | (0.004)   | (0.002)   | (0.003)   |
| Regions                   | -0.002    | 0.004     | -0.006    | 0.000     | 0.001     |
|                           | (0.003)   | (0.004)   | (0.006)   | (0.004)   | (0.004)   |
| Sample size               | 1,869     | 2,062     | 608       | 1,793     | 1,530     |

Notes: Robust standard errors in parentheses \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table A6: Blinder-Oaxaca decomposition by education level

|                           | Education level  |           |           |
|---------------------------|------------------|-----------|-----------|
|                           | Primary or lower | Secondary | Tertiary  |
| Age                       | 0.010            | -0.004    | -0.000    |
|                           | (0.025)          | (0.009)   | (0.017)   |
| Work History (years)      | -0.035           | -0.019*   | -0.031**  |
|                           | (0.022)          | (0.010)   | (0.015)   |
| Female                    | 0.003            | 0.011***  | 0.006*    |
|                           | (0.007)          | (0.004)   | (0.004)   |
| Occupation (ISCO 1-digit) | -0.030           | -0.048*** | -0.100*** |
|                           | (0.023)          | (0.008)   | (0.015)   |
| Sector (Services=1)       | 0.030**          | 0.010***  | 0.001     |
|                           | (0.013)          | (0.003)   | (0.004)   |
| Contract (Temporary=1)    | -0.003           | -0.008**  | -0.004    |
|                           | (0.007)          | (0.004)   | (0.003)   |
| Settlement (Urban=1)      | 0.001            | -0.003    | 0.003     |
|                           | (0.002)          | (0.002)   | (0.003)   |
| Regions                   | -0.017*          | -0.001    | 0.017***  |
|                           | (0.010)          | (0.003)   | (0.006)   |
| Sample size               | 608              | 1,793     | 1,530     |

Notes: Robust standard errors in parentheses \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

## **THE IMPACT OF THE CREDIT POLICY OF BANKS AND INCENTIVE FUNDS ON MSMEs SECTOR GROWTH IN SERBIA**

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*Renata Pindzo*<sup>22</sup>

### **ABSTRACT**

*The authors have analyzed financial sources and their structure, credit policy of banking and other financial organizations and their impact on growth and development of micro, small and medium enterprises (MSMEs). The paper analyzes problems and the impact of different sources of financing on the growth and development of MSMEs in Serbia. Problems are reflected in the chronic lack of system regulations and measures that determine and regulate the financial support for the financial organization (especially non-banking) and the MSME sector. The paper contains proposals for resolving the existing problems regarding financing MSMEs and development of the financial market through the introduction of new financial instruments. These measures should facilitate and promote the establishment, development and sustainability of new and existing MSMEs in Serbia which will lead to job creation and encourage educational processes for management and employees (existing and newcomers) in accordance with the MSMEs best practice in the EU.*

**Key words:** *Financial Sources, Banks, Funds, Credit Policy, Micro, Small And Medium-Sized Companies*

**JEL Classification:** *E52, L53*

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## ***INTRODUCTION***

MSMEs (micro, small and medium enterprises) sector in Serbia mostly relies on its own financial sources which significantly limits the ability of its rapid growth and further development (Table 1).

The financial system in Serbia consists of the National Bank of Serbia (as the central bank), commercial banks and other financial organizations. The banks have dominant role in the Serbian financial system. They make up more than 90% of the total financial system in Serbia (NBS, 2016).

While it is clear that further economic development of the Republic of Serbia requires a strong and stable sector of (non-banking) financial organizations, it is still very underdeveloped by all criteria:

- The size and overall participation in financial services;
- The services offered;
- Lack of information (for citizens and business entities about the opportunities in this sector).

Primarily, the reasons for the underdevelopment lie in the absence of regulations for this area. This leads to a lack of access to financial resources (limited funds) and the high costs of using the existing funds of the financial organization, that are the biggest problems of MSME sector in Serbia. (State, Necessities and Problems of Entrepreneurs in Serbia, 2010, 2011).

From the standpoint of financing SMEs, particularly the presence of a significant degree of investment funds in the economy because they are a potential source of capital for the SME sector.

*Table 1: The Structure of Funds Available for MSMEs*

| <b>CURRENT ASSETS</b>       |             | <b>NEW INVESTMENTS</b> |             |
|-----------------------------|-------------|------------------------|-------------|
| <b>Internal Funds</b>       | <b>82,3</b> | <b>Internal Funds</b>  | <b>86,7</b> |
| Suppliers' loans            | 5,1         | Family/friends         | 3,0         |
| Family/friends              | 4,2         | Local private banks    | 2,6         |
| Local private banks         | 2,9         | Suppliers' loans       | 2,1         |
| State-owned banks           | 2,0         | Shares                 | 1,9         |
| Shares                      | 1,7         | State-owned banks      | 0,8         |
| Private loans with interest | 0,6         | Government             | 0,7         |
| Government                  | 0,5         | Foreign banks          | 0,4         |
| Foreign banks               | 0,4         | Consumers' loans       | 0,3         |

|                             |     |                             |     |
|-----------------------------|-----|-----------------------------|-----|
| Private loans with interest | 0,2 | Private loans with interest | 0,2 |
| Other                       | 0,1 | Other                       | 1,3 |
| Credit Cards                | 0,0 | Credit Cards                | 0,0 |
| Lizing                      | 0,0 | Lizing                      | 0,0 |

Source: „MSMEs Financing in Serbia”, the project: "Non-financial support to MSMEs in Serbia“ p. 15

### ***THE CREDIT POLICY OF BANKING AND NON-BANKING FINANCIAL INSTITUTIONS***

"Serbia Financial Sector Note", the study of the financial sector in Serbia which was conducted by the World Bank in September 2004 as well as research "Financing SMEs sector in Serbia " as a part of the project "Non-financial support to SMEs in Serbia" showed (Table 1) that internal funds are the main sources of financing MSME sector.

Even in developed countries, internal sources of financing are very often the main source of financing for SMEs. On the other hand, unusual is the extremely high level of involvement of internal sources of financing, both for current assets and new investments in the total resources of companies in Serbia (more than 80%).

The banking sector in Serbia is characterized by a rapid growth after year 2000. Simultaneously, the market position of the banks has been changed. The great interest of foreign banks resulted in a strengthening of competition. The business strategy of banks are different as well as their business performance.

Bearing in the mind that the banks have a dominant position on capital markets, they dictate conditions of credit offer for MSMEs. At the moment, this sector represents around 30 commercial banks (NBS, 2016). Balance sheet assets of the banking sector in Serbia, at the end of 2011 amounted to 2649.9 billion. dinars (Eric, 2012, 90).

Besides that, certain credit lines under more favorable conditions (compared to commercial offers) are available to MSME sector in Serbia, through different development funds: the Development Fund of the Republic of Serbia (Fund, 2015), the Fund for Development of Vojvodina (Fond, 2015), which was annexed to the Development Bank of Vojvodina, Development Fund of the Autonomous Province of Vojvodina ltd. Novi Sad, which was founded on 11 th February 2013. (Development Fund, 2015), the Serbian Export Credit and Insurance Agency (Agency, 2015) and securing loans through the Guarantee Fund of the Republic of Serbia (in the period 2003 - 2009. Guarantee Fund operated as an independent entity, after which was annexed to the Development Fund of the Republic of Serbia) (Guarantee Fund, 2015). The credit support to micro, small and medium-sized companies and using these non-financial organization are regulated by the

following regulations (laws and by-laws): the Banking Law, the Law on Enterprises, the Law on Budget of the Republic of Serbia (every year yields), the Law on the Development Fund of the Republic of Serbia, Law on Serbian Export Credit and Insurance Agency, the Law on the Guarantee Fund of the Republic of Serbia, the Law on the Development Fund of AP Vojvodina, Decision on establishing of the Development Fund of AP Vojvodina.

A significant contribution to improved access to financial sources to MSMEs is provided by both international organizations and governments of foreign countries through dedicated "soft" credit lines. One of the world's largest microfinance investment fund is the European Fund for Southeast Europe-EFSA (EFSA, 2016). The Fund raises funds from investors from the public and private sectors, as well as international financial organizations, and then place them to MSMEs through banks. The Fund supports the development of the financial sector in Serbia and represent the stable source of financing the economic activities.

Even though, the scope and range of credit offer for MSMEs sector has significantly increased or achieved in the last few years, their level and quality are still significantly lagging behind the real needs of this sector. There is difference between the needs for capital of these companies and the needs of large companies, which is result of specific characteristics of MSMEs sector that are primarily the consequence of their size and tendency to risk and innovative business ventures, as well as the flexibility (Beraha, 2015, p. 283).

According to the Serbian Chamber of Commerce (Serbian Chamber of Commerce, 2014), strengthening and the improvement of the group of MSMEs research, in the period 2001 – 2011, is a result of improvement of general economic conditions and undertaken incentive measures and activities by the public sector (central and local level). Special attention was paid to creation of a supportive environment for business operations and to providing financial support to MSMEs development. The adoption of a set of laws in the areas of registration, stimulating tax system and the system of financing, expressed initial positive results in the functioning of this group - fighting inactive business entities and accelerated the process of establishing new ones.

Dynamic process of economic and financial groups to strengthen MSMEs, was absent due to insufficient and weak economic strength medium enterprises. Also, the transformation of small to medium enterprises was not enough stimulated. Economic progress and development of the Republic of Serbia depends on the development of a competitive economy based on knowledge, new technologies and innovation. MSMEs have key role in achieving this goal and also have an important contribution to overall economic and social development, particularly in countries in transition, such as the Republic of Serbia.

Serbian MSMEs usually obtain loans from the banks. Beside credit lines dedicated to financing MSME business development, authorised banks also provide grant loans for starting a new business. Depending on the type of loan, the amount of financial resources, as well as many other factors, most banks approve the funds needed for the operation, but a portion of the funds MSMEs has to be provided from their own sources. However, banks do not incline to risk, which

entails lending to MSMEs (USAID, 2012). The greatest problem in process of financing MSMEs from non-banking financial sources, is the lack of resources that are available over the year. In addition, when funds are available, MSMEs are facing with another problem because they can hardly obtain required collateral which are required for loans approval. The costs of available capital are high and consequently, available capital is insufficient for this sector of economy.

In addition to the common problems that MSMEs are faced with in other (developed) countries also, such as lack of experience in dealing with banks, high administrative costs of processing a relatively small loans to these companies, as well as the inability to ensure adequate supplies by MSMEs, this sector in Serbia has a more difficult access to financial sources because:

- banks do not have enough capital so they can not approve long-term loans from its own resources;
- there are no support measures in order to motivate banks to approve loans to MSMEs;
- a large share of the "gray" economy, or performing cash transactions without any records which unable realistic understanding of MSMEs business operations;
- environment is changing rapidly, so it is impossible to reach an adequate historical data on market trends which unable the development and preparation of business plans;
- relatively high inflation rate, especially during the nineties, affects the level of interest rates and long-term financing became very risky.

Until recently, banks have not shown much interest in lending their funds to MSMEs. The main reason lies in the established culture of lending to large companies, lack of qualified staff in banks with knowledge about MSMEs and their potential for profitable lending, insufficient qualification for preparation and presentation of high-quality business plans. We could add that the reasons for insufficient development of MSMEs sector could be found in under-developed banking system, expressed distrust of financial institutions and in a high level of gray economy (Eric et al. 2012, p. 149). In the in the last 5 years there have been significant changes which include:

Increasing foreign participation in Serbian banks that encourages lending to MSMEs;

Many internet sites promote bank lending to MSMEs, which states that the MSMEs became an important factor in the customer base;

The presence of micro-credit organizations aimed to MSMEs in Serbia (e.g. Procredit and Opportunity Bank), with a widespread network of branches. This fact produced higher credit opportunities for MSMEs but also popularize their lending;

Information on banking services available for MSMEs are improved. For example, NBS, regularly publishes a list of services that every large bank makes available to MSMEs (the type of loan, repayment period, interest rate and terms (collateral) and conditions).

Despite the positive developments in MSMEs sector, there are still issues that are need to be resolved:

Banks are still more focused on retail and (large) corporate customers' lending and less on lending to MSMEs;

Loans granted to MSMEs are mostly short-term loans (no longer than one year);

The majority of long-term loans (over one year) that granted by banks to MSMEs are financed by foreign credit lines, e.g. through the European Bank for Reconstruction and Development (EBRD, 2015);

In Serbia, MSMEs lending requires high collateral. "Banks in Serbia often seek for collateral between 150% - 200% for loans in the range of 10,000 - 50,000 EUR, which represents a major obstacle for many MSMEs" (UNDP, Development and Transition Project, 2015);

In practice, banks usually require a mortgage on real estate and / or ownership of the land on behalf as a collateral, but most of immovable property is not yet registered in the land registry so that the title deed cannot be used as a guarantee. Even when the real estate is accepted as collateral for loans, banks often estimate a lower value;

It was noticed that companies often have a resistance to the conditions and procedures that are necessary for process of applying for loans. Usually, they do not know how to prepare a proper business plan. There are also problems in communication between banks and MSMEs.

Another problem could be the fact that in previous years MSMEs, driven by lower interest rates, have borrowed loans denominated in foreign currencies, and thereby increased their exposure to the changes in the value of foreign currencies moved opposite of the declining value of the dinar. Dinar loans approved by Serbian banks, however, also be provided on one condition, which mean that the borrower is required to repay the credit equivalent indicated in EUR. In fact, about 75% of all dinar loans, whether consumer (retail) or corporate, have "foreign currency clause" (NBS, 2015);

Excluding more than welcome lines of different credit organizations such as the EBRD (EBRD, 2016), it seems that the Serbian banks will have to rely solely on their deposits if they want to be part of finance MSMEs. We should not expect that the foreign banks' funds will be available. Access to deposits will depend on the outcome of the Serbian economy, employment and disposable income as well as the participation of private savings. Analyzing the potential impact of NBS (NBS, 2015) on credit terms and conditions, it could be concluded that the NBS' decisions have a binding effect on interest rates and contracting the installments, which leads to the need for precisely defined the contracts by banks. This includes the height of the effective interest rate, how and under which circumstances it could be changed, which exchange rate will be applied for loan repayment, what is the amount of monthly obligations in dinars, as well as in foreign currency, the client's consent for acceptance of the changes of interest rates and other loan conditions.

Financing of MSMEs by the public sector significantly increased. Serbia has developed a series of state-funded programs of support for MSMEs, including the

allocation of loans which includes many institutions and organizations. In the last decade, state's financial and non-financial assistance for the development of entrepreneurial activity is gaining the importance (Eric et al. 2012, p. 149).

When we talk about financing the loans by the public sector, Development fund represents the main channel of financing. It is a state institution/ organization established with the aim of securing funding programs in the field of economic and regional development as well as in the field of development of MSMEs, strengthening competitiveness and related activities. Loans allowed by the Development Fund may be granted by other institutions and organizations (on the basis of commission fee) or Development Fund can provided loans from own sources. The Program of the Government's financial support to MSMEs in Serbia through the Development Fund of the Republic of Serbia includes (Fund, 2012):

1. start up loans - loans for beginners. In the period from 2007 to 2011, 8,303 requests were approved as start-up loans for beginners in the total amount of more than 11.7 billion dinars with interest rate of 1- 3%. 7,575 contracts were concluded totaling more than 10.7 billion dinars. According to the submitted requests, 25,374 workers supposed to be employed (Table 2).
2. in the period from 2009 to 2011, interest rates for loans approved by banks were subsidized. Total amount of approved loans was 3.78 billion EUR, out of which the loans for liquidity amounted to 2.8 billion EUR, or 75.2% of total loans, loans for investments 396.8 million EUR and consumer loans 542.2 million EUR. Half of liquidity loans relates to loans approved to MSMEs. In the period 2010 - 2011, the Republic of Serbia subsidized interest rates for these loans in the total amount of 12.7 billion dinars, or around 123.1 million EUR (Ministry of Economy and Regional Development and the Development Fund of the Republic of Serbia, 2012). This Governmental program had task to secure subsidized loans (for investment activities, liquidity maintenance, financing of fixed assets, export activities, financial leasing etc.).
3. In the period from 2007 to 2011, 728 loans amounted to 8 billion dinars were approved to enterprises and entrepreneurs in the least developed parts of Serbia by the Development Fund of the Republic of Serbia (Fond, 2012), out of which 613 contracts were concluded in the total amount of 6.7 billion dinars. According to the submitted requests, 6,697 workers supposed to be employed (Table 3).
4. In the period from 2007 to 2011, Development Fund of the Republic of Serbia (Fund, 2012) placed loans from its own funds: 3823 contracts were concluded with total value of 60.6 billion dinars (Table 4).

It could be concluded that the strategic interest of the state was to encourage business start-enterprises and development of MSMEs, especially in sectors that produce goods and services with export capacity and to implement programs of financial support to help new and young companies. Long-term and short-term credits, micro credits for employment and start-up loans were placed through the state institutions' infrastructure.

Beside, MSMEs sector was supported at the different regional levels through different programs of the Development Fund of Vojvodina in 2007 has approved 92 programs with a total value of around 352 million dinars (Fond, 2011)), the Guarantee Fund of AP Vojvodina, credit line of the City of Belgrade and others.

The dynamic development of MSME sector in Serbia is primarily a result of improved general business conditions and increased legal security of business entities. In the period 2001 - 2008, improvement of the business environment, introduction of different ways of financing as well as the intensifying investment activities had a positive impact on business growth expressed as the number of active MSMEs. During 2009, due to the global financial crisis, growth and development of MSMEs have slowed and it remained unchanged until today.

Although the MSME sector is dominant in the structure of the Serbian economy and despite the financial support, MSME sector has not been fully recognized (due to the high cost of capital, limited state funding and insufficiently coordinated financial support). Consequently, its development is more result of market needs than favorable conditions of support and incentive system.

*Table 2: Implementation of the Program on Allocation and Use of Funds for Start up Loans for Beginners through the Development Fund of the Republic of Serbia*

|   | 2007  | 2008   | 2009  | 2010  | 2011  | 2007-2011               |
|---|---|--|---|---|---|-------------------------|
| <b>1. ENTREPRENEURS</b>                       |   |  |   |   |   |                         |
| NUMBER OF SUBMITTED REQUESTS                  | 1.534   | 2.429  | 2.588   | 2.523   | 389   | 9.463                   |
| NUMBER OF APPROVED REQUESTS                   | 979   | 1.758  | 1.966   | 778   | 167   | 5.648                   |
| NUMBER OF REALIZED CONTRACT                   | 559   | 1.974  | 1.805   | 681   | 99  | 5.118                   |
| ESTIMATED NUMBER OF EMPLOYEES                 | 2.871   | 4.859  | 5.339   | 1.769   | 254   | 15.092                  |
| AMOUNT OF APPROVED LOANS, IN RSD              | 846,070,000.00  | 1,727,850,000.00                                   | 2,250,200,000.00  | 895,500,000.00  | 207,870,093.80  | 5,927,490,093.80        |
| AMOUNT OF REALIZED / COMPLETED LOANS IN RSD   | 492,085,000.00  | 1,901,528,000.00                                   | 2,063,900,000.00  | 787,900,000.00  | 127,753,429.60  | 5,373,166,429.60        |
| <b>2. LEGAL ENTITIES</b>                      |   |  |   |   |   |                         |
| NUMBER OF SUBMITTED REQUESTS                  | 820   | 701  | 989   | 1,380   | 175   | 4,065                   |
| NUMBER OF APPROVED REQUESTS                   | 528   | 518  | 856   | 595   | 158   | 2,655                   |
| NUMBER OF REALIZED CONTRACT                   | 286   | 707  | 825   | 534   | 80  | 2,432                   |
| ESTIMATED NUMBER OF EMPLOYEES                 | 2,455   | 2,180  | 3,344   | 1,971   | 332   | 10,282                  |
| AMOUNT OF APPROVED LOANS, IN RSD              | 1,121,760,000.00  | 1,069,300,000.00                                   | 1,848,900,000.00  | 1,366,400,000.00  | 420,514,163.00  | 5,826,874,163.00        |
| AMOUNT OF REALIZED / COMPLETED LOANS IN RSD   | 601,060,000.00  | 1,482,480,000.00                                   | 1,791,000,000.00  | 1,230,100,000.00  | 214,492,091.00  | 5,319,132,091.00        |
| <b>FUNDS PROVIDED BY THE BUDGET OF THE RS</b> | <b>1,100,000,000.00</b>   | <b>3,000,000,000.00</b>                            | <b>3,100,000,000.00</b>   | <b>850,000,000.00</b>   | <b>0.00</b>   | <b>8,050,000,000.00</b> |
| Realized annuity payment                      | 0.00  | 12,186,616.16                                      | 345,135,654.68  |   |   |                         |
| Collected funds from annuity                  | 0.00  | 384,008,000.00                                     | 754,900,000.00  | 1,208,950,000.00  | 1,000,000,000.00  | <b>3,347,858,000.00</b> |
| <b>3. TOTAL</b>                               |   |  |   |   |   |                         |
| NUMBER OF SUBMITTED REQUESTS                  | 2,354   | 3,130  | 3,577   | 3,903   | 564   | 13,528                  |
| NUMBER OF APPROVED REQUESTS                   | 1,507   | 2,276  | 2,822   | 1,373   | 325   | 8,303                   |
| NUMBER OF REALIZED CONTRACT                   | 845   | 2,681  | 2,630   | 1,237   | 179   | 7,572                   |
| ESTIMATED NUMBER OF EMPLOYEES                 | 5,326   | 7,039  | 8,683   | 3,740   | 586   | 25,374                  |
| AMOUNT OF APPROVED LOANS, IN RSD              | 1,967,830,000.00  | 2,797,150,000.00                                   | 4,099,100,000.00  | 2,261,900,000.00  | 628,384,256.80  | 11,754,364,256.80       |
| AMOUNT REALIZED / COMPLETED CREDITS IN RSD    | 1,093,145,000.00  | 3,384,008,000.00                                   | 3,854,900,000.00  | 2,058,950,000.00  | 342,245,520.60  | 10,733,248,520.60       |
| <b>INTEREST RATE</b>                          | <b>1% ANNUALY</b>   | <b>1% ANNUALY</b>                                  | <b>1% ANNUALY</b>   | <b>2.5 % ANNUALY</b>  | <b>3% ANNUALY</b>   |                         |
| <b>LOAN LIMIT</b>                             | <b>ENTREPRENEURS<br/>15.000 EUR<br/>LEGAL ENTITIES<br/>30.000 EUR</b> | <b>FROM<br/>400.000,00 TO<br/>2.400.000,00 RSD</b> | <b>ENTREPRENEURS<br/>FROM<br/>500.000 TO 1.300.000<br/>RSD<br/>LEGAL ENTITIES<br/>FROM 500.000 TO<br/>2.500.000 RSD</b> | <b>ENTREPRENEURS<br/>FROM<br/>500.000 TO<br/>1.900.000 DEN<br/>LEGAL ENTITIES<br/>FROM 500.000 TO<br/>2.500.000 RSD</b> | <b>ENTREPRENEURS<br/>FROM<br/>500.000,00 TO<br/>1.500.000,00 RSD<br/>LEGAL ENTITIES<br/>FROM 500.000,00<br/>TO 5.000.000,00<br/>RSD</b> |                         |

*Source: Ministry of Economy and Regional Development and Development Fund of the Republic of Serbia, 2012*

*Table 3 - Realization of the Program on Allocation and Use of Funds for Support and Development of Enterprises and Entrepreneurship in Underdeveloped Municipalities in Serbia through the Development Fund of the Republic of Serbia*

|   | 2007                    | 2008                    | 2009                    | 2007-2009               |
|---|-------------------------|-------------------------|-------------------------|-------------------------|
| <b>1. ENTREPRENEURS</b>                       |                         |                         |                         |                         |
| NUMBER OF SUBMITTED REQUESTS                  | 257                     | 167                     | 184                     | 608                     |
| NUMBER OF APPROVED REQUESTS                   | 162                     | 43                      | 140                     | 345                     |
| NUMBER OF REALIZED CONTRACT                   | 114                     | 77                      | 116                     | 307                     |
| ESTIMATED NUMBER OF EMPLOYEES                 | 786                     | 168                     | 376                     | 1,330                   |
| AMOUNT OF APPROVED LOANS, IN RSD              | 209,300,000.00          | 58,800,000.00           | 242,100,000.00          | 510,200,000.00          |
| AMOUNT OF REALIZED / COMPLETED LOANS IN RSD   | 147,700,000.00          | 103,000,000.00          | 170,200,000.00          | 420,900,000.00          |
|   |                         |                         |                         |                         |
| <b>2. LEGAL ENTITIES</b>                      |                         |                         |                         |                         |
| NUMBER OF SUBMITTED REQUESTS                  | 205                     | 223                     | 210                     | 638                     |
| NUMBER OF APPROVED REQUESTS                   | 129                     | 93                      | 161                     | 383                     |
| NUMBER OF REALIZED CONTRACT                   | 93                      | 92                      | 121                     | 306                     |
| ESTIMATED NUMBER OF EMPLOYEES                 | 2,401                   | 966                     | 2,000                   | 5,367                   |
| AMOUNT OF APPROVED LOANS, IN RSD              | 1,817,100,000.00        | 1,767,900,000.00        | 3,979,000,000.00        | 7,564,000,000.00        |
| AMOUNT OF REALIZED / COMPLETED LOANS IN RSD   | 1,385,400,000.00        | 1,955,100,000.00        | 3,012,800,000.00        | 6,353,300,000.00        |
|   |                         |                         |                         |                         |
| <b>FUNDS PROVIDED BY THE BUDGET OF THE RS</b> | <b>1,535,235,946.66</b> | <b>2,000,000,000.00</b> | <b>2,490,000,000.00</b> | <b>6,025,235,946.66</b> |
| Realized annuity payment                      | 0.00                    | 8,687,346.63            | 864,829,799.42          | 873,517,146.05          |
| Collected funds from annuity                  | 0.00                    | 58,100,000.00           | 693,000,000.00          | 751,100,000.00          |
|   |                         |                         |                         |                         |
| <b>3. TOTAL</b>                               |                         |                         |                         |                         |
| NUMBER OF SUBMITTED REQUESTS                  | 462                     | 390                     | 394                     | 1,246                   |
| NUMBER OF APPROVED REQUESTS                   | 291                     | 136                     | 301                     | 728                     |
| NUMBER OF REALIZED CONTRACT                   | 207                     | 169                     | 237                     | 613                     |
| ESTIMATED NUMBER OF EMPLOYEES                 | 3,187                   | 1,134                   | 2,376                   | 6,697                   |
| AMOUNT OF APPROVED LOANS, IN RSD              | 2,026,400,000.00        | 1,826,700,000.00        | 4,221,100,000.00        | 8,074,200,000.00        |
| AMOUNT REALIZED / COMPLETED CREDITS IN RSD    | 1,533,100,000.00        | 2,058,100,000.00        | 3,183,000,000.00        | 6,774,200,000.00        |

*Source: Ministry of Economy and Regional Development and Development Fund of the Republic of Serbia, 2012*

#### Supporting Development and Employment Program in Devastated Areas

|                | 2010                     |                         | 2011                     |                       |
|----------------|--------------------------|-------------------------|--------------------------|-----------------------|
|                | Number of Realized Loans | Amount                  | Number of Realized Loans | Amount                |
| Legal entities | 2                        | 1,137,250,000.00        | 1                        | 230,000,000.00        |
| Entrepreneurs  |                          |                         |                          |                       |
| <b>TOTAL</b>   | <b>2</b>                 | <b>1,137,250,000.00</b> | <b>1</b>                 | <b>230,000,000.00</b> |

#### Encouraging the Development of Enterprises and Entrepreneurship in Underdeveloped Municipalities

|                | 2010                     |                         | 2011                     |                         |
|----------------|--------------------------|-------------------------|--------------------------|-------------------------|
|                | Number of Realized Loans | Amount                  | Number of Realized Loans | Amount                  |
| Legal entities | 88                       | 3,187,800,000.00        | 68                       | 2,145,698,120.00        |
| Entrepreneurs  | 62                       | 110,700,000.00          | 22                       | 54,997,000.00           |
| <b>TOTAL</b>   | <b>150</b>               | <b>3,298,500,000.00</b> | <b>90</b>                | <b>2,200,695,120.00</b> |

## Investment in Labor-Intensive Branches of Manufacturing Industry in Underdeveloped Municipalities

|                | 2010                     |                       | 2011                     |                       |
|----------------|--------------------------|-----------------------|--------------------------|-----------------------|
|                | Number of Realized Loans | Amount                | Number of Realized Loans | Amount                |
| Legal entities | 24                       | 815,500,000.00        | 26                       | 522,788,000.00        |
| Entrepreneurs  | 4                        | 7,000,000.00          | 7                        | 13,914,000.00         |
| <b>TOTAL</b>   | <b>28</b>                | <b>822,500,000.00</b> | <b>33</b>                | <b>536,702,000.00</b> |

|  |           |                       |           |                       |
|--|-----------|-----------------------|-----------|-----------------------|
| <b>TOTAL PER Programs of Support for Balanced Regional Development</b> | <b>28</b> | <b>822,500,000.00</b> | <b>33</b> | <b>536,702,000.00</b> |
|--|-----------|-----------------------|-----------|-----------------------|

## The Source of Financing

|  | 2010                    | 2011                  |
|--|-------------------------|-----------------------|
| <b>BUDGET OF THE REPUBLIC OF SERBIA</b>                                | <b>1,700,000,000.00</b> | <b>850,000,000.00</b> |
| <b>COLLECTED FUNDS FROM ANNUITY</b>                                    | <b>1,209,854,134.00</b> |                       |
| <b>REGULAR RESOURCES OF DEVELOPMENT FUND OF THE REPUBLIC OF SERBIA</b> | <b>2,348,395,866.00</b> |                       |
| <b>TOTAL</b>   | <b>5,258,250,000.00</b> |                       |

Table 4: Loans Granted from the Funds in the Development Fund for the Period from 2007 to 2011

|   | 2007                    | 2008                     | 2009                     | 2010                     | 2011                     | 2007-2011                |
|---|-------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>1. Number of contracts</b>                                     | 857                     | 966                      | 1,129                    | 608                      | 263                      | 3,823                    |
| <b>2. The amount of funds placed by purposes - total</b>          |                         |                          |                          |                          |                          |                          |
| <b>2.1. Loans to the business entities and issuing guarantees</b> | 6,946,070,068.00        | 7,825,554,968.00         | 12,934,785,464.00        | 12,200,726,874.00        | 8,902,988,623.00         | 48,810,125,997.00        |
| <b>2.2. Entrepreneurs' loans and issuing guarantees</b>           | 555,200,000.00          | 740,555,000.00           | 937,100,000.00           | 447,696,796.00           | 188,366,463.00           | 2,868,918,259.00         |
| <b>2.3. Short-term corporate loans</b>                            | 1,583,500,000.00        | 3,969,300,000.00         | 397,300,000.00           | 2,021,500,000.00         | 974,000,000.00           | 8,945,600,000.00         |
| <b>TOTAL</b>  | <b>9,084,770,068.00</b> | <b>12,535,409,968.00</b> | <b>14,269,185,464.00</b> | <b>14,669,923,670.00</b> | <b>10,065,355,086.00</b> | <b>60,624,644,256.00</b> |

Source: Ministry of Economy and Regional Development and Development Fund of the Republic of Serbia, 2012

Note: Above data does not include the funds placed for start-up loans, according to the Program for stimulation of balanced regional development and subsidized interest rates

**LOANS COLLECTIBILITY**

Collectibility of loans from the local banking sector has been solid in the observed period. According to data obtain from the Credit Bureau (Loan Statement and Arrears to the non-governmental sector, as of 31.03.2007., The Credit Bureau, Association of Serbian Banks), non-performing loans (with arrears of 90 days or more) make 5, 92% of total loans as of 31th March 2007 (significantly below the 10% that would be alarming level according to studies with comparative data from other countries that have researched and examined the link between the occurrence of banking crises and the level of non-performing loans). Collectibility is the weakest in loans to enterprises – legal entities (5.99% of NPLs).

In the period from March 2007 until the end of 2011 was characterised with significantly increased household debt, both legal entities (68%) and individuals (22%). However, because of the strong connection between growth in economic activity, as a result of the reduction in demand due to the global economic crisis and its consequences, the loans collectability recorded a deterioration. The share of arrears in total number of approved loans increased to 17% as of 31st December 2011, and mostly referred to legal entities, especially to collectability of short-term loans.

As of 31th March 2007, total approved loans to legal entities (enterprises) by the local banks amounted to 5,315 million EUR (Table 5), while direct loans from abroad amounted to 4,800 million EUR (4,565 million EUR at the end of 2006 according to the available official data on external debt and about 300 million of additional net debt in the first two months of 2007 based on data from the balance of payments). We could note that the total domestic debt was slightly higher than foreign (by about 500 million EUR).

As of 31th December 2010 (Table 6) the total corporate loans from approved by the local banks amounted to 11,074.48 million EUR, which was more than doubled compared to March 2007. However, in the period of one year or until the end of 2011, total approved loans increased by 12.162 million EUR. At the same time, foreign indebtedness of the company from 2007 to 2011 increased by 1,698 million (or 23%) and amounted to 9,617.3 million EUR.

In the same period, 23,313 different companies (accounting for 28% of total registered enterprises in Serbia) have been using banking loans. However, information on the maximum potential credit market companies should not be identified with the total number of registered enterprises (85.460 at the end of 2006) and therefore bank loans coverage of 28% because the number of companies that actually operated in that period were considerably lower. A large number of companies was fictitiously registered without operations on a daily basis which was which is pre-requisite to make them potential borrowers.

As of 31th 2007, companies that were users of banking loans had on average 2.19 active loans in comparison with the total number of loan contracts which amounted to 51.073. Mentioned companies were borrowed almost equally short-term and long-term loans. Only 5% of total loans approved to legal entities referred to revolving loans. The average debt of the company was around 104,000 EUR per credit. Long-term loan debt on the average amounted to 128,191 EUR, while short-term loan debt was 102,229 EUR on average (Table 5).

Analyzing the maturity of approved corporate loans it can be concluded that it was more favorable situation in late 2011 in favor of long-term loans, bearing in the mind that they have made up 51% of total loans approved to legal entities. Short-term loans accounted for 38% of total loans.

Increased borrowing by legal entities in 2011 in comparison with to 2010 resulted in an increased share of long-term loans in the total number of approved loans.

Average debt per loan, at the end of 2010, amounted to 107,000 EUR in comparison to 2011 when it amounted on average 142,000 EUR. Available data

showed that from 2007 to 2010, the average debt per loan increased by around 3,000 EUR, and in 2011 only by 35,000 EUR. In 2011, the average debt on long-term loan amounted to around 195,000 EUR, in comparison with the average debt on short-term loan that amounted to 132,000 EUR.

In the terms of direct corporate borrowing abroad long-term loans were prevailing (NBS, 2013). Around 5.53% of the total corporate loans approved by the local banking sector consisted of non-performing loans. Non-performing loans are slightly more represented in the total amount of long-term loans compared to short-term (5.99% and 5.39%, respectively). On the other hand, it is noticed that long-term loans referred to a smaller number of loan agreements with a relatively higher amounts.

At the end of 2011, even 17.07% of the total company's debt on loans from the local banking sector made loans that are characterised by difficult collectibility. They are more characteristic for short-term loans (18.17%) than long-term loans (17.98%). The share of loans with delay in repayment is almost the same for both long-term and short-term loans (19% and 17.5%), but the average debt per loan in arrears was larger for long-term loans (184,862 EUR) than for short-term loans (137,007 EUR), which was result of the fact that long-term loans had increased.

Reporting period (from 2007 to 2011) was characterised by increased number of disbursed loans, increased loan debt, increased average approved loan (amount) per user (but not essentially the average number of credit contracts per user), but also loans collectibility.

Table 5: Outstanding Debt and Delays on Banks' Loans to the Non-government Sector, as of 31 December, 2007.

|   | 1               | 2                      | 3            | 4                               | 5                                   | 6   | 7                            | 8                                | 9                            | 10                    | 11  | 12   | 13   | 14  | 15   | 16  |
|---|-----------------|------------------------|--------------|---------------------------------|-------------------------------------|---|------------------------------|----------------------------------|------------------------------|-----------------------|---|--|--|---|--|---|
|   | Number of Loans | Number of Loans' users | Total Debt   | The average debt per loan (1:2) | The average debt per borrower (3:2) | Percent Number of loan contracts per borrower (1:2) | The number of loans in delay | The number of borrowers in delay | Total debt on loans in Delay | Amount of Total Delay | The share of past due loans in total debt (9:3) | The share of past due loans in total debt (10:3) | The number of arrears to total loans (7:1) | Number of users in overdue loans in the total number of borrowers (8:2) | The average debt per loan with delay (8:9) | The average number of loans in delay per user (8:7) |
|   |                 |                        | in mill. EUR | In EUR                          | In EUR                              |   |                              |                                  | in mill. EUR                 | in mill. EUR          | In %  | In %   | In %                                       | In %  | In EUR                                     |   |
| <b>Total loans to the non-governmental sector</b> | 1.101.660       | 924.424                | 7.580,34     | 6.881                           | 8.200                               | 1,19  | 34.079                       | 28.533                           | 372,96                       | 440,21                | 4,92  | 3,17   | 3,09                                       | 3,09  | 10944,06                                   | 1,19  |
| Out of which:                                     |                 |                        |              |                                 |                                     |   |                              |                                  |                              |                       |   |  |  |   |  |   |
| Legal entities                                    | 51.073          | 23.313                 | 5.315,21     | 104.071                         | 227.994                             | 2,19  | 3.440                        | 2.358                            | 293,79                       | 226,35                | 5,33  | 4,26   | 6,74                                       | 10,11   | 85.405                                     | 1,46  |
| Long-term   | 20.273          | 12.550                 | 2.398,81     | 128.191                         | 207.076                             | 1,62  | 1.020                        | 807                              | 152,59                       | 97,54                 | 5,99  | 3,75   | 5,03                                       | 6,43  | 152.339                                    | 1,26  |
| Short-term  | 24.065          | 13.153                 | 2.460,15     | 102.229                         | 187.041                             | 1,83  | 2.376                        | 1.689                            | 132,59                       | 124,60                | 5,39  | 5,06   | 9,87                                       | 12,84   | 55.805                                     | 1,41  |
| General   | 6.735           | 3.880                  | 256,26       | 38.049                          | 43.381                              | 1,15  | 44                           | 39                               | 5,61                         | 4,21                  | 2,19  | 1,64   | 0,65                                       | 0,66  | 127.497                                    | 1,13  |
| Entrepreneurs                                     | 36.681          | 26.226                 | 217,82       | 5.938                           | 8.306                               | 1,40  | 1.085                        | 931                              | 5,83                         | 4,79                  | 2,68  | 2,20   | 2,88                                       | 3,55  | 5.508                                      | 1,14  |
| Long-term   | 16.098          | 13.343                 | 150,65       | 9.339                           | 11.291                              | 1,21  | 297                          | 269                              | 2,24                         | 1,50                  | 1,49  | 1,00   | 1,84                                       | 2,02  | 7.545                                      | 1,10  |
| Short-term  | 14.866          | 12.506                 | 51,95        | 3.494                           | 4.221                               | 1,21  | 754                          | 671                              | 3,57                         | 3,28                  | 6,87  | 6,52   | 5,07                                       | 3,45  | 4.730                                      | 1,12  |
| General   | 5.717           | 3.466                  | 15,22        | 2.662                           | 2.785                               | 1,05  | 7                            | 7                                | 0,02                         | 0,01                  | 0,13  | 0,06   | 0,12                                       | 0,13  | 2.925                                      | 1,00  |
| Retail loans                                      | 1.052.900       | 874.885                | 2.569,05     | 2.487                           | 2.936                               | 1,18  | 28.808                       | 25.244                           | 67,17                        | 31,96                 | 2,61  | 1,24   | 2,79                                       | 2,89  | 2.331                                      | 1,14  |
| In cash   | 397.228         | 539.980                | 1.224,53     | 2.050                           | 2.288                               | 1,11  | 19.081                       | 17.365                           | 33,32                        | 14,48                 | 2,72  | 1,18   | 3,19                                       | 3,22  | 1.746                                      | 1,10  |
| Unintended  | 240.352         | 219.506                | 232,23       | 966                             | 1.038                               | 1,09  | 3.534                        | 3.361                            | 7,73                         | 4,79                  | 3,33  | 2,06   | 2,31                                       | 2,44  | 1.392                                      | 1,04  |
| Consumer  | 6.703           | 6.576                  | 25,12        | 3.747                           | 3.820                               | 1,02  | 60                           | 60                               | 0,40                         | 0,40                  | 1,60  | 0,90   | 0,91                                       | 0,91  | 6.685                                      | 1,00  |
| Adaptation  | 26.794          | 25.470                 | 672,05       | 25.082                          | 26.386                              | 1,05  | 230                          | 224                              | 9,05                         | 2,27                  | 1,35  | 0,34   | 0,86                                       | 0,88  | 39.345                                     | 1,03  |
| Residential                                       | 158.078         | 141.256                | 386,43       | 2.445                           | 2.736                               | 1,12  | 3.733                        | 2.904                            | 15,74                        | 9,83                  | 4,07  | 2,54   | 2,36                                       | 2,06  | 4.215                                      | 1,29  |
| Other   | 3.745           | 2.891                  | 28,70        | 7.663                           | 9.927                               | 1,30  | 150                          | 138                              | 0,93                         | 0,25                  | 3,23  | 0,89   | 4,01                                       | 4,77  | 6.175                                      | 1,09  |
| Agriculture                                       |                 |                        |              |                                 |                                     |   |                              |                                  |                              |                       |   |  |  |   |  |   |

Source: Credit Bureau, Association of Serbian Banks, 2007



Table 7: The Banks's Loans Debt and Matures Outstanding Obligations as of 31.12.2011.

|                       | Number of loans | Number of borrowers | The amount of outstanding debt, in mil. EUR | Average amount of debt per borrower, in EUR | Average amount of debt per borrower, in EUR | The average number of loan contracts per borrower | Number of loans in delay | The number of borrowers in delay | Total debt on loans in Delay in mil. EUR | Amount of Total Debt in mil. EUR | The share of past due loans in total debt | The share of past due loans in total debt | The amount of loans in delay to total loans | Number of users overdue loans in total number of borrowers | The average debt per loan with delay | The average amount of loans in delay per user |
|-----------------------|-----------------|---------------------|---|---|---|---|--------------------------|----------------------------------|--|----------------------------------|---|---|---|--|--------------------------------------|---|
|                       |                 |                     | FX rate                                     | FX rate                                     | FX rate                                     |   |                          |                                  | FX rate                                  | FX rate                          |   |   |   |  |                                      |   |
|                       | 1               | 2                   | 3   | 4   | 5   | 6   | 7                        | 8                                | 9  | 10                               | 11  | 12  | 13  | 14   | 15                                   | 16  |
|                       |                 |                     |   | 3/1   | 3/2   | 1/2   |                          |                                  |  |                                  | 9/3                                       | 10/3                                      | 7/1   | 8/2  | 9/7                                  | 7/8   |
|                       |                 |                     |   | FX rate                                     |   |   |                          |                                  |  | FX rate                          |   | FX rate                                   | 104,6409                                    |  |                                      |   |
|                       |                 |                     |   | 104,6409                                    |   | 104,6409  |                          | 104,6409                         |  |                                  |   |   |   |  |                                      |   |
| <b>Total loans</b>    | 1,415,327       | 1,134,060           | 18,141,99                                   | 12,818.2                                    | 15,997.4                                    | 1.25  | 135,047                  | 116,681                          | 2,583.87                                 | 1,807.65                         | 14.24                                     | 10.39                                     | 9.54  | 10.39  | 19,133.09                            | 1.16  |
| <b>Legal entities</b> |                 |                     |   |   |   |   |                          |                                  |  |                                  |   |   |   |  |                                      |   |
| Long-term             | 85,650          | 33,020              | 12,162.78                                   | 142,005.6                                   | 368,545.9                                   | 2.39  | 13,482                   | 7,446                            | 2,076.58                                 | 1,587.72                         | 17.07                                     | 13.05                                     | 15.74                                       | 22.55  | 154,010.93                           | 1.81  |
| Short-term            | 31,323          | 19,027              | 6,127.24                                    | 195,614.9                                   | 322,028.9                                   | 1.65  | 5,959                    | 4,187                            | 1,101.59                                 | 684.91                           | 17.98                                     | 11.18                                     | 19.02                                       | 22.01  | 184,861.99                           | 1.42  |
| <b>General</b>        | 35,952          | 18,470              | 4,755.79                                    | 132,281.6                                   | 257,487.1                                   | 1.95  | 6,307                    | 4,120                            | 864.10                                   | 803.52                           | 18.17                                     | 16.90                                     | 17.54                                       | 22.31  | 137,007.12                           | 1.53  |
|                       | 18,375          | 12,128              | 1,279.75                                    | 69,646.3                                    | 105,520.4                                   | 1.52  | 1,216                    | 986                              | 110.68                                   | 99.29                            | 8.65                                      | 7.76                                      | 6.62  | 8.13   | 91,018.83                            | 1.23  |
| <b>Entrepreneurs</b>  |                 |                     |   |   |   |   |                          |                                  |  |                                  |   |   |   |  |                                      |   |
| Long-term             | 69,521          | 43,677              | 759.45                                      | 10,924.0                                    | 17,387.9                                    | 1.59  | 11,128                   | 8,334                            | 129.60                                   | 89.34                            | 17.07                                     | 11.76                                     | 16.01                                       | 19.08  | 11,046.61                            | 1.34  |
| Short-term            | 38,267          | 29,778              | 469.82                                      | 12,277.5                                    | 15,777.5                                    | 1.29  | 7,411                    | 6,100                            | 90.18                                    | 54.47                            | 19.20                                     | 11.59                                     | 19.37                                       | 20.48  | 12,168.93                            | 1.21  |
| <b>General</b>        | 20,266          | 15,281              | 206.44                                      | 10,186.3                                    | 13,509.3                                    | 1.33  | 3,074                    | 2,645                            | 33.36                                    | 28.65                            | 16.16                                     | 13.88                                     | 15.17                                       | 17.31  | 10,833.68                            | 1.16  |
|                       | 10,988          | 9,747               | 83.19                                       | 7,571.0                                     | 8,555.0                                     | 1.13  | 643                      | 590                              | 6.06                                     | 6.21                             | 7.28                                      | 7.46                                      | 5.85  | 6.05   | 9,417.38                             | 1.09  |
| <b>Retail loans</b>   |                 |                     |   |   |   |   |                          |                                  |  |                                  |   |   |   |  |                                      |   |
| In cash               | 1,260,156       | 1,057,563           | 5,219.76                                    | 4,142.2                                     | 4,956.6                                     | 1.19  | 110,457                  | 106,901                          | 377.89                                   | 190.59                           | 7.24                                      | 5.65                                      | 8.76  | 9.54   | 3,421.75                             | 1.09  |
| Committed             | 746,825         | 675,687             | 1,369.36                                    | 1,835.6                                     | 2,026.6                                     | 1.11  | 61,984                   | 59,088                           | 138.68                                   | 82.03                            | 10.13                                     | 5.99                                      | 8.30  | 8.74   | 2,238.05                             | 1.05  |
| Consumer              | 220,233         | 205,623             | 365.57                                      | 1,659.9                                     | 1,777.9                                     | 1.07  | 26,911                   | 26,093                           | 32.71                                    | 18.02                            | 8.95                                      | 4.93                                      | 12.22                                       | 12.69  | 1,215.49                             | 1.03  |
| <b>Adaptation</b>     |                 |                     |   |   |   |   |                          |                                  |  |                                  |   |   |   |  |                                      |   |
| Rentidential          | 15,103          | 14,609              | 81.79                                       | 5,415.2                                     | 5,598.3                                     | 1.03  | 1,245                    | 1,214                            | 6.37                                     | 2.18                             | 7.79                                      | 2.66                                      | 8.24  | 8.31   | 5,120.44                             | 1.03  |
| Other                 | 85,676          | 80,355              | 2,834.73                                    | 33,086.7                                    | 35,277.6                                    | 1.07  | 2,944                    | 2,856                            | 128.46                                   | 36.97                            | 4.53                                      | 1.30                                      | 3.44  | 3.55   | 43,633.60                            | 1.03  |
| <b>Other</b>          | 135,587         | 130,145             | 327.58                                      | 2,416.0                                     | 2,517.1                                     | 1.04  | 5,093                    | 4,858                            | 27.58                                    | 22.42                            | 8.42                                      | 6.84                                      | 3.75  | 3.73   | 5,425.97                             | 1.05  |
| <b>Agriculture</b>    | 56,732          | 42,701              | 240.71                                      | 4,243.0                                     | 5,637.2                                     | 1.33  | 12,290                   | 10,488                           | 44.09                                    | 28.98                            | 18.32                                     | 12.04                                     | 21.66                                       | 24.31  | 3,587.25                             | 1.17  |

Source: Credit Bureau, Association of Serbian Banks, 2011

## **CONCLUSION**

Development of financial market is not a simple or easy task which can be realized in the short term.

Although in reported period, large number of steps were taken in order to improve the infrastructure for financing MSME sector like establishment of the Guarantee Fund of the Republic of Serbia (which was associated to the Development Fund of the Republic of Serbia), Serbian Export Credit and Insurance Agency, the Development Fund of AP Vojvodije (which was associated to the Development Bank of Vojvodina), the establishment of the Development Fund of AP Vojvodina doo Novi Sad by the provincial government as a majority owner and the Government of the Republic of Serbia as a minority owner), their activities were still insufficiently focused towards MSMEs sector. The biggest obstacle for the development of MSMEs sector remains limited access to financial sources, which is particularly sensitive to the national economy having in mind the role and significance of these companies for growth and development of the overall economy. These these institutions/organizations were not sufficiently contributed to better access of MSMEs sector to sources of financing, primarily due to lack of funds. Although the granting of start-up loans was much higher than before, yet the available funds for these loans are insufficient that can be proved by significantly larger number of submitted applications for these funds.

National Bank of Serbia does not report the specific information or data on loans approved to MSMEs sector. However, bearing in mind that the annual growth rate of approved bank loans to the private sector in 2006 was 25.6% (dominated by the corporate loans) with a share of 61.3% in the total amount of approved loans. In the first half of 2007, banking loans approved to the private sector (corporate loans) recorded an increase in absolute terms of around 117 billion dinars. Banks have expanded the supply of different credit lines to MSMEs sector, but mostly aiming to overcome liquidity problems. These credit lines were approved under very unfavorable conditions. However, the interest of banks for MSMEs sector significantly increased, which indicates the importance of this sector for development of the national economy. However, the price of banking capital is still high, which could be mitigated by establishing an efficient system of microcredit lines, which is expected to affect the banking sector that still has a monopol on the financial market.

Based on different sources it can be concluded that:

- the financial sector is not fully defined and built in accordance with the actually needs of MSMEs sector, which is dominant in the structure of the Serbian economy;
- the banking sector has contributed significantly to the improvement of MSMEs financing, but it is not sufficient to meet all specific requirements for capital at all stages of the development of MSMEs, high interest rates and unfavorable lending conditions of commercial banks;

- financial and other institutions and organizations within the public sector have contributed to improvement of the funding possibilities dedicated to MSMEs sector, but it has been noticed insufficient volume of funds for long-term investment programs under favorable conditions; Loans as financial instruments in the financial support to the SME sector;
- loans as financing instrument dominated in the structure of the financial support directed to MSMEs sector;
- lack of integrated financing of MSMEs policies, especially when we talk about the start-up loans, microcredits, venture capital, joint credit guarantees as well as and local development funds;
- lack of specialized development banks for financing of MSMEs sector;
- lack of awareness of MSMEs on the availability of support programs and available financing sources.

For further development of the MSMEs sector it would be necessary to work on further development of financial markets, including the introduction of new financial instruments that will serve for the development of MSMEs sector. This implies:

- Establishment of financial support to MSMEs - beginners through appropriate financial organization/institution;
- Legal framework upgrading for microfinance organizations;
- Establishment of a specific organization dedicated to financing of MSMEs (private investment funds);
- Adoption of regulations for the functioning of local credit guarantee schemes;
- Integration of the various instruments of financial support through a one financial organization - Development Bank;
- Introduction of the new financing instruments which includes the issuance of (own) treasury financial instruments (securities) and engagement in trading on the stock exchange as an opportunity to raise additional capital for development purposes;
- Integration and coordination of financial and non-financial support to MSMEs sector;
- Regional and local level involvement in the process of financing MSMEs sector development through public-private partnerships, such as public-private venture capital funds that can be specialized e.g. on geographical basis, and whose investment policy is in line with the objectives of regional policy or the Government

In the end, it can be concluded that the availability of financing sources intended to financing MSMEs sector in Serbia is affected by numerous factors, starting from the financial, legal, business and institutional environment in which MSMEs operate, as well as the supply and demand for funds. Government involvement is necessary for improvement of the institutional and legal framework, the development of alternative sources of financing as well as the development of educational process, especially in the field of financial management in MSMEs.

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## **FINANCIAL ANALYSIS OF DIFFERENT CATEGORIES OF FARM IN SELECTED AREAS OF MYMENSINGH DISTRICT**

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### **ABSTRACT**

*This study dealt with the objectives of financial analysis of farms using primary data in two villages of Mymensingh Sadar including socioeconomic investigation and analysis of balance sheet, income statement and ratios. A total of 100 farms including 45 small, 35 medium and 20 large were randomly selected for the study. Socioeconomic analysis showed that indebtedness was higher in large farms than those of small and medium ones. Large farms also engaged more in farm activities than others. All of the asset position, income expenditure and saving were positively related with farm size but non-farm income was negatively related. Analysis of balance sheet depicted that all the farms became able to generate a positive net worth which was the highest in large farms followed by small and medium ones in terms of percentage term. Income statement analysis showed that each of the farms was profitable and earned positive net profit at the end of the accounting year. Net profit had a positive relation with farm size. Results of ratio analysis expressed that none of the farms was fully financially strong. But maximum of seven ratios were favorable to large farms followed by small and medium farms. So, considering overall situation, large farms were relatively strong followed by small and medium farms in the study area. This study suggests for similar studies in other parts of country to develop a benchmark for comparison which is almost absent in present situation of Bangladesh.*

**Key words:** Farms, Analysis, Bangladesh

**JEL Classification:** D13, Q14

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## ***INTRODUCTION***

### ***STATEMENT OF THE PROBLEM***

Farms are the point of origin of agricultural production irrespective of the nature of agriculture. It is the unique composite unit of operation where different types of resources are combined to achieve specific goals. On the other hand, finance is the acquisition and use of resources in business (Murray, Nelson, 1991). Among different activities of farm, financial operation is the most important because it is the means of other operations. Financial operations generally include inflow and outflow of fund and its allocation. Every farm owner wants to make his farm profitable, strong and efficient. Financial analysis is one of the ways to assess the strength of the farm through the study of balance sheet, income statement and different types of ratios. Though it is said that financial statement of rural farm households in Bangladesh is not possible as farmers do not maintain any proper written record for their operations, but it should be remembered that structure of Bangladesh agriculture has been changed and farms are getting commercial form from its traditional subsistence nature in some extent. Moreover, record keeping is positively related with the frequency of business operations, specially cash inflows and outflows. Commercial farms generally have frequent cash flows and have to maintain record properly. Subsistence farms do fewer transactions which can be easily memorized and for this reason record keeping does not seem an urgent work for them. In Bangladesh, through traditional crop farms have fewer transactions but farms like dairy, poultry, seed, flower, vegetables, etc. which are run almost commercially have frequent transactions and keep written records, some properly and some partially. Again, Bangladesh agriculture experienced a notable growth of farm based non-farm occupations over the past decade which also helped in bringing commercial nature in Bangladesh agriculture. Moreover, many of the rural households are the stakeholders of the NGOs where they have to keep records of their operations. So, it can be said that record keeping, though not completely, is being done in rural Bangladesh partially. With this partial records and strong memory recall of the farm owners, the dearth of records for making financial statements can be fulfilled and financial analysis can be done for the farms in rural Bangladesh. This type of analysis bears importance to realize the real situation of our farming community and is expected to contribute in making policy for their development in national and local levels.

### ***FINANCIAL ANALYSIS- MEANING AND IMPORTANCE***

Financial analysis is the process of evaluating businesses, projects, budgets and other finance-related entities to determine their suitability for investment. Typically, financial analysis is used to analyze whether an entity is stable, solvent, liquid, or profitable enough to be invested in. Generally three major financial

analyses are done in business or agribusiness world to evaluate the performance of a firm which are balance sheet analysis, income statement analysis and ratio analysis. When looking at a specific firm, the financial analyst will often focus on the income statement, balance sheet, and cash flow statement. In addition, one key area of financial analysis involves extrapolating the company's past performance into an estimate of the company's future performance. By financial analysis one can evaluate financial and other information for decision-making. It is used for assessment of the effectiveness with which funds (investment and debt) are employed in a firm, efficiency and profitability of its operations, and value and safety of debtors' claims against the firm's assets (Anthony, 2003). It employs techniques such as funds flow analysis and financial ratios to understand the problems and opportunities inherent in an investment or financing decision. The main objective of financial analysis is to know firm's financial status, its debt, revenue, expenditure, equity, share price, segmental revenue/expenditures, etc. With Financial analysis one can know the present status of a firm and we can expect about its future.

Financial analysts provide guidance to businesses and individuals making investment decisions. They assess the performance of stocks, bonds, commodities, and other types of investments. They are also called as security analysts and investment analysts, and they work for banks, insurance companies, mutual and pension funds, security firms, the business media, and other business institutions, making investment decisions or recommendations. Financial analysts study company or firm financial statements and analyze commodity prices, sales, costs, expenses, and tax rates to determine a firm's value by projecting its future earnings. They often meet with company officials to gain a better insight into the firms' prospect and management.

### ***BALANCE SHEET IN FINANCIAL ANALYSIS***

The balance sheet of a firm presents the financial position of the firm at a given point of time. The major items in the balance sheet are assets, liabilities, and shareholders' equity. Assets are economic resources with the potential to provide future benefit to a firm. Liabilities are creditors' claims on the assets of the firm. Shareholders' equity shows the amount of funds the owners have provided to the firm which is also their claim on the assets of the firm. Claims on assets coming from shareholders' equity are the excess of assets beyond those required to meet creditors' claims. As a firm must invest somewhere the resources it gets from financing, the balance sheet shows the obvious identity that total assets must equal to the sum of total liabilities and shareholders' equity.

For households, the balance sheet consists of three major items—household assets, household liabilities, and household wealth (White et al. 1998). Examples of household assets are cash in hand, financial claims such as deposits at financial institutions or informal lending, various types of inventories, and fixed assets such as land and equipment. Household liabilities are debts borrowed from both financial institutions and people, formally and informally. The residual claim of

the household members over household assets in excess of liabilities is the wealth of the household. The wealth of the household changes over time due to either savings out of household's net income, or other transactions such as gifts and transfers. These could be positive or negative.

The balance sheet shows what the firm business has (assets) and what it owes against those assets (liabilities). The difference between the assets and the liabilities shows the net worth of the business. The net worth of the business is important in that it is a measurement of the time the business is expected to stay in financial power. The balance sheet also provides the business with information on how best it is able to pay its debts. Underwriters also use the information in the balance sheet (working capital) to assess the business' ability to finance its operations. The balance sheet assists the managers of businesses in making decisions regarding purchasing of equipments for the business. Business managers depend on the balance sheet to analyze whether buying certain equipment on debt is the right move for the business at that time. Business managers need the balance sheet so as to decide the best source of credit for the business at that time. It shows the accounting equation in a physical representation. The balance sheet also shows the owner's equity for example, it shows the value of the stock and the number of shares outstanding. The balance sheet is also used by the government agencies to make sure that the business is complying with the set laws. It also provides information to any potential lenders of the business on the credit worthiness of the business.

### ***INCOME STATEMENT IN FINANCIAL ANALYSIS***

The income statement is the statement of revenues, costs, gains and losses over a period of time, ending with net income during the period. Net income is total revenue minus total costs. Revenues are from the net assets, flowing into a firm when it sells goods or provides services. Costs stem from the net assets utilized by a firm in the process of generating revenue. The income statement therefore presents the performance of the operating activities of a firm over a specified period of time.

There are two approaches to the income statement. These are cash basis of accounting that looks at the revenues and the expenses of a firm as it receives or spends cash, respectively (Pandey, 1988). This approach is acceptable when a firm has small changes in inventories, and the purchase of inputs, the production, and the sale of outputs occurred in the same period. Otherwise cash inflows from sales in one given period could relate to the production and the use of inputs, with consequent cash outflows, in preceding periods. An alternative approach is the accrual basis of accounting revenues and costs are realized (charged) when the firm sells the output. As the revenues and the costs of one period relate to the output from the same activity or asset, the accrual-basis income statement tells more accurately the performance and profitability of the firm, better than the possibly more volatile cash-basis income statement.

Households engaged in activities that take several months or years to complete, especially in developing countries where cultivation and livestock

raising are common practices. Also, inventories could play an important role, particularly for agricultural production, which has high fluctuations of input and output prices over the year.

### ***RATIO ANALYSIS IN FINANCIAL ANALYSIS***

A ratio is a quantitative relationship between two related variables. Ratio analysis is a widely used tool of financial analysis. It can be used to compare the risk and return relationship of firms of different sizes. Ratio analysis is a systematic use of ratios to interpret/assess the performances and status of the firms (Khan et al., 2012). Uses of ratio to interpret the financial statements so that the strengths and weaknesses of a firm as well as its historical performance and current financial condition can be determined.

As a tool of financial management, ratios are of crucial significance. The importance of ratio analysis lies in the fact that it presents facts on a comparative basis and enables the drawing of inferences regarding the performance of a firm. By using the ratio analysis one can easily identify the strengths and weaknesses of a firm at a glance.

### ***UTILITY OF RATIO ANALYSIS***

As a tool of financial management, ratios are of crucial significance. Ratio analysis bears importance by presenting facts on comparative basis by drawing inferences regarding the performance of firm business. It is relevant in assessing the performance of a firm in respect of the aspects of liquidity position, long-term solvency, operating efficiency, overall profitability, inter-firm comparison and trend analysis. With the help of ratio analysis conclusions can be drawn regarding the liquidity position of a firm. The liquidity position of a firm would be satisfactory if it is able to meet its current obligations when they become due. Ratio analysis is equally useful for assessing the long term financial viability of a firm (Khan et al., 2012). Another dimension of the usefulness of the ratio analysis, relevant from the viewpoint of management, is that it throws light on the degree of efficiency in the management and utilization of its assets. This analysis not only throws light on the financial position of a firm but also serves as a stepping stone to remedial measures. Finally, ratio analysis enables a firm to take the time dimension into account. In other words, it is used to know whether the financial position of a firm is improving or deteriorating over years under analysis.

### ***JUSTIFICATION OF THE STUDY***

The agriculture of Bangladesh is characterized by farms of different categories. Every categories of farm household plays an important role for the socio economic development of the country. Though these farm households are the

main base of agricultural economy as well as rural economy but they fail to draw proper attention in many types of research. Financial analysis which is very important for any economic unit is very rarely found in case of farm households.

Several structural changes have been taken place in Bangladesh agriculture since 1960s. Now it starts its move from traditional subsistence agriculture to commercial one. Several financial analyses are found in the case of commercial or industrial firms but they are scant in the case of agricultural farms. Moreover, financial analyses of different categories of farm households are almost absent in Bangladesh.

An effort is made to explore the financial condition of different farm households in Bangladesh along with their socioeconomic conditions. The present study reviews and finds out the exact financial condition of root level farm households. It will also help to identify potentials in terms of financial strength of farm households contributing to the Bangladesh agricultural economy. The result of this study may be helpful to the policy makers and development workers in formulating plans for national agricultural development.

### ***OBJECTIVES OF THE STUDY***

1. to document the socioeconomic profile of the farms under study
2. to prepare and analyze the balance sheet of different categories of farms of the study area
3. to prepare and study the income statement of the farms under study
4. to examine the strengths and weakness of the farms by calculating different financial ratios.

### ***OUTLINE OF THE STUDY***

The study consists of eight chapters. Chapter 1 explained introduction of the study. Relevant review of literature briefly describes in Chapter 2. Methodology of the study is presented in Chapter 3. Chapter 4 deals with socio-economic profile of the respondent households. Chapter 5 deals with balance sheet analysis of the farms under study and Chapter 6 with the income statement analysis of the farms under study. Chapter 7 deals with the ratio analysis of the farms under study and lastly summary conclusion and recommendation of the present study are highlighted in the Chapter 8.

### ***LIMITATIONS OF THE STUDY***

In conducting the field work of this research, a number of problems were faced, some of which are mentioned below.

1. Most of the respondents have no clear idea about present type of research work, for this reason, it seemed difficult to explain the purpose of the study to convince them.

2. Most of the farmers initially hesitated to make a favorable environment for the investigator to collect data as they thought that the investigator might use the information against their interest.
3. Due to illiteracy some respondents were initially unable to understand the questions asked by the interviewer, and in some cases irrelevant answers were given.
4. Most of the respondents did not keep proper written records and accounts of their activities.
5. Due to lack of proper knowledge, the respondents were indifferent to the objectives of the study and answered questions in careless manner.

In spite of all the difficulties pointed out above, the researcher tried his best to collect reliable information from the respondents. It is hoped that the study could fulfill its objectives by the constant persuasion and untiring patience of the researcher throughout the study period.

## ***REVIEW OF LITERATURE- CHAPTER II***

Review of related literature in any research is very essential in the sense that it provides an opportunity for reviewing the stock of knowledge and information to the proposed research. These knowledge and information give a guideline in designing the future research problem and validating the new findings. The purpose of this chapter is to review the previous research works which are related to the present study. It is worth mentioning that such a study like financial analysis of different categories of farm households in selected areas of Bangladesh is a new and important study as no systematic research has yet been carried out in this regard. As a result no exact literature on similar study could be found. Impact of different development programs and projects at home and abroad relevant to this study are highlighted to the presented one.

**Astrida and Jurat (2014)** made a study on the assessment of methodologies to determine the strengths and weaknesses of farm business. The study found that farm economic viability assessment differs from country to country that is determined by differences in the natural environment, a different support policy, return on equity, labour productivity and land productivity. Methodologies relied on 23 financial ratios and 10 nonfinancial indicators, including 5 recurring indicators, namely, return on equity, expense to income ratio, debt ratio, net return, and output to economic size unit ratio. After an empiric comparative analysis of economic viability in Lithuanian farms, the obtained results were compared to similar results from farms in the EU states and it was found that there is no best methodology of the assessment of the economic viability of agricultural holdings for Lithuania.

**Cloete and Spies (2013)** made a study to provide valuable information not only to new entrants (farmers) that wished to convert from livestock to wildlife but also for established ranchers that wanted to expand their practices or those who wanted to diversify for remaining financially sustainable in the current economic environment. The study concluded that the economic pressure in some spheres of the wildlife

industry was also evident in the financial performances of operations with results that indicated consumptive utilization of plains wildlife, especially in terms of harvesting and biltong hunting, that was not yielding the desired financial returns.

**Sarkar et al. (2011)** attempted to determine the contract grower's costs and returns of the open pollinated tomato seed production and resource use efficiency under different categories of farmers in some selected areas of greater Rangpur district. In total 60 open pollinated tomato seed contract growers were purposively selected in consultation with BADC personnel at the categories of marginal, small and medium farmers. Total cost, gross margin, gross return, net return and benefit cost ratio (undiscounted) were estimated for financial analysis. The results revealed that per hectare total cost, gross return and net return of open pollinated tomato seed production were estimated at Tk 220313, 384000 and 163687, respectively. There's benefit cost ratios came out to be 1.64, 1.74 and 1.83 for marginal, small and medium farmer's respectively which was found a bit higher for the medium open pollinated tomato seed contract growers.

**Horhota (2009)** showed that the use of financial ratios and margins in assessing, benchmarking and monitoring farm performance became more common over the past few years. This complemented producers' efforts to define the economics of producing farm commodities and tying economic performance at the enterprise level to financial performance at farm level. The study provided definitions and interpretations of the more common financial ratios and techniques employed in agriculture. It was found that many new enterprises and products actually operated at a loss (at a point below break-even) in the early stages of development. His study suggested that break-even analysis also very helpful in the evaluation of a new venture.

**Wilson et al. (2007)** studied a farm financial analysis program along with four features that facilitated its use by farm managers. The four features that appeared to increase farm manager's interest in the program were performance, accrual-adjusted income statement, financial analysis system, and easy use of the results of the analysis.

**Akcaoz et al. (2006)** studied financial characteristics of farmers for risk attitudes in agricultural production in Antalya Province. Results showed that farmers were the key persons in making decisions regarding farm expansion, marketing and production pattern and off-farm employment. Approximately 55.2% of the studied farms did not keep production records, 25.9% availed credit, 24.5% had savings and 37.1% had other investment.

**Hasan (2006)** made a financial performance analysis on the contribution of different non institutional sources of credit and the factors affecting the repayment behavior of the borrowers. The study showed that there were four types of interlinkages: credit-product, credit-cash, credit-labour and credit-land in the study area. Among the interlinkages credit with labour was the highest performance linkage and the money lenders were the most important informal financial source.

**Rasul, Thapa (2003)** conducted a study on financial viability are sustainability analysis of ecological and conventional systems in Bangladesh. Their study was based on environmental soundness, financial viability and social

acceptability. Significant differences were found in crop diversification, soil fertility, pests and disease management and use of agrochemicals. No remarkable variations were found in land use pattern, crop yield and stability, financial and economic returns, risk and uncertainties and food security. The findings suggested that ecological agriculture was relatively more sustainable, and it could be financially and environmentally viable alternative to the conventional agricultural system. Ecological agriculture could become an alternative if market distortions created by subsidies were removed, and financial benefits were provided to resource-conserving farmers along with necessary support through extension, credit, research and marketing.

**Lestina, Bednarova (2001)** made an effect on strategy of agriculture and risk management including financial performance in a South Bohemian (Czech Republic) farm enterprise with 3420 ha of agricultural land and 140 workers. Evaluation of the capability of the enterprise to manage risk showed that internal risk factors were the most easily influenced. External risk factors created a complicated situation for the company to make its financial returns.

**Kerutagi et al. (2000)** calculated ratio of beneficial cost along with profitability of turmeric production in Belgaum district of Karnataka. A survey was conducted selecting a sample size of 60 turmeric growers from 2 villages each in Athani (Koralii and Elihadalagi) and Rabibag (Hidakal and Harugeri), Belgaum, Karnataka, India. This study reveals that sampled farmers mainly grew turmeric cultivars Salem and Cuddapah with no variation in cultivation costs. The physical inputs used (human and bullock labour, seed materials, farmyard manures, fertilizers, gypsum, plant protection and irrigation) and the output (yield in terms of the main and the byproduct) obtained in turmeric cultivation was analyzed. The gross return were Rs 208428/ha with Rs 183975 coming from the main product and Rs 24453 from the by-product. The net returns were Rs 132846/ha and the benefit: cost ratio was 2.76.

**Jabber et al. (1997)** explored on rice, risk, rationality and supply response in Bangladesh. It was found that rational response of rice producers in less development countries (LDCs) assumed risk-neutrality. The role of risk in farmer's decision making was recognized as an important determinant of production. If farmers were rational and risk averse in LDCs they should consider not only expected output prices and yields when allocating resources but also expected risk in output prices and yields. The extent to which price and yield risk did in fact affect producer's decision was an important empirical question. In this paper they reviewed the literature on risk and supply response in agriculture of LDCs incorporating issue like fertilizer-price ratio for farm decision making.

**Das (1996)** in his financial analysis of credit receiving was favorable to compared to small and medium ones. Credits were obtained mostly for producing rice. A lion's share of loaned money was productively utilized by the sampled borrowers. Family expenditure seemed to be expectedly low. The large farmers were the major beneficiaries followed by the medium and small ones.

**Rahman (1992)** dealt with resource allocation efficiency, which was basically a ratio of output and input of HYV boro production in Brahmanbaria district". He

stated that the relationship between farm size and efficiency is neither positive nor negative. To investigate the effect of farm size on productivity of inputs a Cobb-Douglas production function comprising six independent variables and a partial Cobb-Douglas production function in which farm size is only independent variable were fitted to the data obtained from one hundred farmers by direct interview method. A significant positive relationship was found between the farm size groups who achieved different levels of efficiency.

**Duncan (1980)** reported on commodity price risk management and financial markets. This paper discussed the various price stabilization measures and introduced the role of the financial markets in hedging some of the price risk. It illustrated the importance of such problem for the developing countries, discussed some of the limitations of price stabilization schemes and showed how some new financial innovations including different financial analysis could be used by developing countries to manage their commodity price risk more effectively.

The above reviewed studies were found only the studies relevant to the present study. The present study tried to add some new information in financial management of farm business including its decision making in which is very important in the field of modern agriculture specially the agriculture of Bangladesh.

### ***METHODOLOGY OF THE STUDY- CHAPTER III***

Every kind of research involves certain methodological shortcomings to provide an understanding of social phenomena. The reliability of a research depends on the proper methodology. So methodology is very important for any research process and has to be chosen carefully to fulfill the purpose of the study. Methodology should be such that it would enable the researcher to collect valid and reliable information and to analyze those data to arrive at correct decision. For the present study primary data were collected to meet the objectives of the study. The primary data consisted of both qualitative and quantitative data and were collected through interviews with selected respondents asked key informants using structured and semi-structured schedule, case studies and observation were also used in data collection. For analysis and presentation of data different tools were used.

The various aspects concerning the methodology of the present study are described under the following heads:

1. Selection of the study area
2. Sampling technique and selection of sample size
3. Preparation and pre-testing of interview schedule
4. Period of survey
5. Processing and analysis of data.

## ***SELECTION OF THE STUDY AREA***

Selection of the study area is an important step and largely depends upon the objectives set for the study. The area in which a farm business survey is to be conducted relies on the particular purpose of the survey and the possible cooperation from the respondents. For selection of the study area the researcher visited several villages of Mymensingh district and finally two villages namely Bhabkhali and Narayanpur from Bhabkali union under Sadar upazilla of Mymensingh district were purposively selected. The selection of the study area based on the following main characteristics:

1. Preferred area is suitable to the objectives of the study.
2. Availability of suitable farm households.
3. Good transportation facilities with town which helped the survey to become less expensive and less time consuming.
4. Expected cooperation of the respondents so that reliable data might be obtained.
5. This type of study was not conducted before in this area.

## ***SAMPLING TECHNIQUE***

In a complete enumeration, the required information is collected from each and every element of the population, which is very costly and time consuming. The normal practice is to select a sample of representative households, which could represent reasonably a true picture of entire population. Considering the objectives, time and availability of fund and man power, two villages mentioned above were selected purposively. The selection of the respondent was done according to the following consideration:

1. Small households having a lower annual income less than Tk 55,000.
2. Medium households having a medium annual income ranging between Tk 55,000 to 100,000.
3. Large households having annual income more than Tk 100,000.

Considering all of these aspects 100 sample farm households were randomly selected in order to meet the objectives of the study. The allocation of the respondents is shown in Table 1., 45 percent of the farms were small, 35 percent were medium and the rest 20 percent were of large farm households.

Table 1: Distribution of Samples under Study

| Name of the village | Sample size |    |        |    |       |    |       |     |
|---------------------|-------------|----|--------|----|-------|----|-------|-----|
|                     | Small       |    | Medium |    | Large |    | Total |     |
|                     | No.         | %  | No.    | %  | No.   | %  | No.   | %   |
| Bhabkhali           | 25          | 25 | 12     | 12 | 10    | 10 | 47    | 47  |
| Narayanpur          | 20          | 20 | 23     | 23 | 10    | 10 | 53    | 53  |
| Total               | 45          | 45 | 35     | 35 | 20    | 20 | 100   | 100 |

Source: Field Survey (2014)

### ***PERIOD OF INVESTIGATION***

The present study is based on primary data of the financial year 2012-13. The researcher himself collected required information during first quarter of 2014. The period of study was July 2012 to June, 2013 and the period of survey was January to March 2014.

### ***PREPARATION OF SURVEY SCHEDULE***

The interview schedule was carefully prepared to record the required data on various aspects of the study. Keeping conformity with the objectives of the study, a draft interview schedule was prepared in order to collect relevant information. The draft was first pre-tested with some farmer in the study area. Then interview schedule were improved, rearranged and modified in the light of the field experiences gathered in pre-testing. The questions in the interview schedule were arranged developed in logical sequences so that the respondents could give the accurate information sequentially without any confusion. The questions were properly structured, so that the most relevant information could have obtained and even the most reluctant informant could have no hesitation in passing on the necessary information.

The final schedule included questions on the following items:

1. Identification of the respondents and family composition.
2. General information of the respondent's households, along with the information on education, occupation, age group, income etc.
3. Description of the different types of activities performed by the selected farmers along with their cash inflow, outflow etc.
4. Information on different types of assets, liabilities, inventory etc.

## ***METHOD OF DATA COLLECTION***

Collection of reasonable and reliable data from the field is not an easy task. Mainly, survey method was followed in the present study as the method is comparatively less costly, less time consuming, easier to employ and most appropriate for the farm enterprises working in the country. In order to obtain reliable data, the researcher first visited the study area. For collecting data, he stayed in the selected villages so that the farmers could respond at their own conveniences. At the time of interview he asked questions systematically and explained whenever necessary. To supplement primary data, some secondary sources like loan bank of NGOs, receipts, vouchers, etc. were also collected and used for the study.

## ***COLLECTION OF DATA***

The researcher tried his best to collect data since the success of the survey depended on the reliability of collected data. After the schedule was finalized, the researcher himself collected necessary data through personal interview with individual respondents. Before beginning interview each respondent was given a brief description about the nature and the purpose of the study it was purely academic having no adverse effect on them. Then the questions were asked in a simple manner with explanation wherever necessary. The respondents were given sufficient time for strong memory recall and were required to give information with write giving. The information supplied by the farmers was recorded directly on the interview schedules. Interviewees were requested to provide correct information as far as possible. The information was checked carefully before leaving the study area and the confusions were rationalized by comparing those with local and national standards. In order to minimize errors, data were collected in local units. These were subsequently converted into appropriate standard units.

## ***ANALYSIS OF DATA***

After completion of pre-tabulation tasks, the data were computed in master sheet for analysis. Then they were classified, tabulated and analyzed to accomplish the specific objectives of the study. Descriptive method with simple statistical tool was followed in analysis the collected data. Data entry was made in computer and analyses were done using the concerned Software Microsoft Excel.

Report from balance sheet and income statement (Pandey,1988) were followed in the study. In the case of balance sheet

$$NW = TA - TL$$

Where, NW = net worth, TA = total assets and TL = total liabilities

In the case of income statement,

$$\text{NCI} = \text{TCR} - \text{TCE}$$

$$\text{and, NP} = \text{NCI} + \text{NCV}$$

$$= \text{TCR} - \text{TCE} + \text{NCV}$$

Where,

NCI = net cash income, TCR = total cash receipts, TCE = total cash expenses, NP = net profit and NCV = net change in inventory

$$\text{Again, NCV} = \text{EV} - \text{BV}$$

Where,

EV = ending value of existing stock and BV = beginning value of existing stock

There are several ratios performed by the experts to judge the financial strength of the firm business. In this study major nine ratios (Singh, 1988) were accomplished to achieve the objectives of the study. These are:

- (i) Current ratio =  $\frac{\text{Current assets}}{\text{Current liabilities}}$
- (ii) Working capital ratio =  $\frac{\text{Current and intermediate assets}}{\text{Current and intermediate liabilities}}$
- (iii) Fixed ratio =  $\frac{\text{Fixed or long term assets}}{\text{Fixed or long term liabilities}}$
- (iv) Net capital ratio =  $\frac{\text{Total assets}}{\text{Total liabilities}}$
- (v) Equity ratio =  $\frac{\text{Net worth}}{\text{Total liabilities}}$
- (vi) Equity-to-assets value ratio =  $\frac{\text{Net worth}}{\text{Total assets}}$
- (vii) Gross ratio =  $\frac{\text{Total expenses}}{\text{Gross income}}$
- (viii) Operating ratio =  $\frac{\text{Total operating expenses}}{\text{Gross income}}$
- (ix) Rate of capital turn over =  $\frac{\text{Gross income}}{\text{Total assets}}$

All the above ratios are explained elaborately with their results in Chapter VII.

## ***SOCIOECONOMIC PROFILE OF THE FARM HOUSEHOLDS- CHAPTER IV***

Socioeconomic background and characteristics of the sample households have a vital role in farm business to a greater extent. It is reflection of a farm's positive and negative conditions. A farm differs from one another in many respects and its success and failure depend on its socioeconomic characteristics. A number of

socioeconomic aspects of the selected households were considered in the present study. These are family size and composition, age distribution, occupation of the family members, education level of the respondents and their family member's, land ownership, annual household income etc. which have been discussed in subsequent sections.

### ***FAMILY COMPOSITION***

Family composition in this study has been defined as the total number of persons living together and taking meals from the same kitchen under the administration of the same head. The family includes wife, son, daughter, father, mother, younger brother, etc. The family members were classified into four different age groups, i.e., (i) below 15 years, (ii) 10 to 60 years, (iii) above 60 years. Age and sex distribution of family members are presented in Table 4.1. The average size was found to be 4.50 for small households, 6.4 for medium households and 6.5 for large households (Table 2). Thus the average number of persons per family among all households was 5.80. Family size maintained a positive relationship with size of the households under study.

*Table 2: Family Size and Composition of Household Members*

| Sex    | Family size     |                 |                 | All<br>(no.)    |
|--------|-----------------|-----------------|-----------------|-----------------|
|        | Small<br>(no.)  | Medium<br>(no.) | Large<br>(no.)  |                 |
| Male   | 2.50<br>(55.55) | 3.40<br>(53.12) | 3.70<br>(56.92) | 3.20<br>(55.17) |
| Female | 2.00<br>(44.44) | 3.00<br>(46.80) | 2.80<br>(43.80) | 2.60<br>(44.82) |
| Total  | 4.50<br>(100)   | 6.40<br>(100)   | 6.50<br>(100)   | 5.80<br>(100)   |

*Figures in the parentheses indicate percentages of total  
Source: Field Survey (2014)*

Age distribution of the family members of the selected households is given in Table 3. The table shows that 26.66 and 28.12 per cent of the total members of the small and medium farms belonged to the age group of below 15 years which was lower than that of large households of 30.76 per cent. Considering all households together, 65.51 percent of the members belonged to working age group, i.e. above 15 to 60 years.

## ***LEVEL OF LITERACY***

It is well recognized that the problem of literacy in Bangladesh is more acute for female members than male members of the family. Literacy is defined as the ability of an individual to read and write. The government and various organizations place due emphasis on education and provide special facilities (like free education, stipend, etc.) for increasing the rate of literacy.

*Table 3: Age Distribution of the Households Members*

| Age groups (years) | Small (no.)     | Medium (no.)    | Large (no.)     | All (no.)       |
|--------------------|-----------------|-----------------|-----------------|-----------------|
| Below 15           | 1.20<br>(26.66) | 1.80<br>(28.12) | 2.00<br>(30.76) | 1.66<br>(28.62) |
| Above 15 to 60     | 2.95<br>(65.55) | 4.30<br>(67.18) | 4.15<br>(63.84) | 3.80<br>(65.51) |
| Above 60           | 0.35<br>(7.77)  | 0.30<br>(4.68)  | 0.35<br>(3.44)  | 0.33<br>(5.68)  |
| Total              | 3.40<br>(100)   | 6.41<br>(100)   | 6.50<br>(100)   | 5.80<br>(100)   |

*Figures in the parentheses indicate percentages of total*  
*Source: Field Survey (2014)*

*Table 4: Distribution of Family Members by Level of Education*

| Education level      | Small (no.)     | Medium (no.)    | Large (no.)     | All (no.)       |
|----------------------|-----------------|-----------------|-----------------|-----------------|
| Pre-school           | 0.80<br>(10.66) | 0.45<br>(9.89)  | 0.70<br>(11.66) | 0.65<br>(10.81) |
| Illiterate           | 3.10<br>(41.33) | 1.50<br>(32.96) | 1.80<br>(30)    | 2.10<br>(34.94) |
| Primary              | 2.35<br>(31.33) | 2.10<br>(46.15) | 2.60<br>(43.33) | 2.35<br>(39.10) |
| Secondary            | 1.35<br>(18)    | 0.50<br>(10.98) | 0.70<br>(11.66) | 0.85<br>(14.14) |
| Graduation and above | -               | -               | 0.20<br>(3.33)  | 0.06<br>(0.99)  |
| Total                | 7.50<br>(100)   | 4.55<br>(100)   | 6.00<br>(100)   | 6.01<br>(100)   |

*Figures in the parentheses indicate percentages of total*  
*Source: Field Survey (2014)*

Table 4. shows that 41.33 per cent of family members of small households were illiterate. The corresponding figures for medium and large households were 32.96 and 30.00 percent respectively. The highest per cent of household member having primary education belonged to medium households (46.15 per cent). The percentage of persons having secondary education in small households was the highest (18 per cent). About 3.33 per cent of the large households had graduation and post-graduation level education, while none of the small and medium households was graduate.

## **LAND HOLDINGS**

Land holdings of the respondents were classified into the categories of homestead, own land, pond, garden, etc. Table 5. shows that the average homesteads were 0.05 ha, for small households, 0.06 ha for medium households and 0.07 ha for large households. In the case of small households, own land was 0.05 ha, while the corresponding figures for medium and large households were 0.1 and 0.2 ha. A limited amount of land was devoted to homestead gardening and pond. The medium and large households rented out and mortgaged out some amount of land but it was nil in the case of small household. It may be concluded that the member of large households were engaged in farming activities more than that of the medium and small income families.

*Table 5: Ownership Pattern of Land and Tenurial Arrangement of the Farm Households. (in ha.)*

| Households category | Homestead       | Pond            | Garden         | Own cultivated  | Rented in       | Rented out     | Mortgage in     | Mortgage out   | Total cultivated | Total land    |
|---------------------|-----------------|-----------------|----------------|-----------------|-----------------|----------------|-----------------|----------------|------------------|---------------|
|                     | 1               | 2               | 3              | 4               | 5               | 6              | 7               | 8              | 9(4+5+7)-(6+8)   | 10            |
| Small               | 0.05<br>(33.33) | -               | -              | 0.05<br>(33.33) | 0.05<br>(33.33) | -              | -               | -              | 0.10<br>(66.67)  | 0.15<br>(100) |
| Medium              | 0.06<br>(20)    | 0.02<br>(8)     | 0.01<br>(4)    | 0.10<br>(40)    | 0.05<br>(20)    | 0.01<br>(4)    | 0.04<br>(16)    | 0.01<br>(4)    | 0.17<br>(68)     | 0.25<br>(100) |
| Large               | 0.07<br>(34.39) | 0.04<br>(9.75)  | 0.02<br>(4.87) | 0.20<br>(48.78) | 0.04<br>(9.75)  | 0.03<br>(7.31) | 0.06<br>(14.61) | 0.02<br>(4.87) | 0.25<br>(60.97)  | 0.41<br>(100) |
| All                 | 0.06<br>(22.22) | 0.03<br>(11.11) | 0.01<br>(3.70) | 0.11<br>(40.74) | 0.05<br>(18.51) | 0.01<br>(3.70) | 0.03<br>(11.11) | 0.01<br>(3.70) | 0.17<br>(62.98)  | 0.27<br>(100) |

*Figures in the parentheses indicate percentages of total*

*Source: Field Survey (2014)*

## **INDEBTEDNESS**

The study also shows that the percentage of credit recipient was higher for large households (95.00 per cent) than that for medium households (77.14 percent) and small households (55.55 percent). It was reported that 71.00 per cent of the families borrowed money for purchasing consumer goods. The loan was also received for purchasing agricultural inputs and others tangible and intangible assets of households (Table 6.).

Table 6: Cause of Borrowing in Different Farm Households

| Causes of borrowing                          | Small<br>(no.)   | Medium<br>(no.)  | Large<br>(no.)   | Total<br>(no.)   |
|--|------------------|------------------|------------------|------------------|
| Purchasing input for agricultural production | 4.00<br>(8.89)   | 6.00<br>(17.14)  | 4.00<br>(20.00)  | 14.00<br>(14.00) |
| Purchasing of cow and bullock                | -                | 2.00<br>(5.71)   | 2.00<br>(10.00)  | 4.00<br>(4.00)   |
| Purchasing of agricultural land              | -                | 1.00<br>(2.85)   | 2.00<br>(10.00)  | 4.00<br>(4.00)   |
| Purchasing of consumer goods                 | 12.00<br>(26.67) | 7.00<br>(20.00)  | 3.00<br>(15.00)  | 20.00<br>(20.00) |
| Medical treatment                            | 1.00<br>(2.22)   | -                | -                | 1.00<br>(1.00)   |
| Meeting expenses of health care              | 3.00<br>(6.67)   | 3.00<br>(8.57)   | 2.00<br>(10.00)  | 7.00<br>(7.00)   |
| Meeting expenses of marriage                 | 3.00<br>(6.67)   | 2.00<br>(5.71)   | 3.00<br>(15.00)  | 5.00<br>(8.00)   |
| Business purposes                            | 2.00<br>(4.44)   | 2.00<br>(5.71)   | 3.00<br>(15.00)  | 9.00<br>(9.00)   |
| Total (no.)                                  | 25.00<br>(55.55) | 27.00<br>(77.14) | 19.00<br>(95.00) | 71.00<br>(71.00) |

Figures in the parentheses indicate percentages of total  
Source: Field Survey (2014)

## ASSET POSITION

Table 7. shows that the total value of assets were Tk. 42700, 127500 and 211800 for small, medium and large households respectively. The value of land was higher for large households (Tk 75123.47) than that for small households (Tk 24609.74) and medium households (Tk 49304.78). The value of agricultural equipment, livestock and poultry, modern amenities, etc. was also higher for large families than that of other households. The assets position suggests that the standard of living of large families was better than that of small and medium families.

Table 7: Assets Position of the Respondent Households

| Household category | Average value of different assets (Tk) |                        |                       |                   |                                 |                     | Total assets    |
|--------------------|--|------------------------|-----------------------|-------------------|---------------------------------|---------------------|-----------------|
|                    | Land                                   | Agricultural equipment | Livestock and poultry | Modern amenities  | Buildings + Household furniture | Others              |                 |
| Small              | 24609.74<br>(57.63)                    | 6050.75<br>(14.17)     | 449.27<br>(1.05)      | 987.88<br>(2.31)  | 7593.26<br>(17.78)              | 3187.88<br>(7.47)   | 42700<br>(100)  |
| Medium             | 49304.78<br>(38.67)                    | 12178.45<br>(9.55)     | 10412.34<br>(8.16)    | 5010.39<br>(3.93) | 25295.22<br>(19.83)             | 25298.82<br>(19.84) | 127500<br>(100) |
| Large              | 75123.47<br>(35.47)                    | 18132.67<br>(8.56)     | 15564.34<br>(7.35)    | 7956.64<br>(3.76) | 30376.53<br>(13.34)             | 64646.35<br>(30.52) | 211800<br>(100) |

Figures in the parentheses indicate percentages of total  
Source: Field Survey (2014)

## ***ANNUAL INCOME OF THE HOUSEHOLDS***

In this study, annual family income was considered as the summation of income earned by all family members from different farm and non-farm activities. The average family incomes of small, medium and large farm households were Tk 54878, 96279 and 147260 respectively which was positively related with farm size (Table 8.). But, although farm income was positively related with farm size, it was negative for non-farm income. It might be due to the more dependency of smaller farm households on farm based non-farm occupations compared to the larger households in the study area.

*Table 8: Annual Income of the Sample Households*

| Households | Types            |                      | Total income (Tk) |
|------------|------------------|----------------------|-------------------|
|            | Farm income (Tk) | Non-farm income (Tk) |                   |
| Small      | 14025 (25.56)    | 40853 (74.44)        | 54878 (100)       |
| Medium     | 30279 (31.45)    | 66000 (68.55)        | 96279 (100)       |
| Large      | 75000 (50.93)    | 66000 (49.07)        | 147260 (100)      |

*Figures in the parentheses indicate percentages of total  
Source: Field Survey (2014)*

## ***ANNUAL EXPENDITURE OF THE HOUSEHOLDS***

All kinds of expenditure including variable and fixed made for family and farm are considered in the study under annual expenditure of the households. The average family expenditure of small, medium and large farm households were Tk 48490, 81250 and 112200 respectively which was positively related with farm size (Table 9).

*Table 9: Annual Expenditure of the Sample Households*

| Households | Types                  |                            | Total expenditure (Tk) |
|------------|------------------------|----------------------------|------------------------|
|            | Fixed expenditure (Tk) | Operating expenditure (Tk) |                        |
| Small      | 39550.00 (81.56)       | 8940.00 (18.44)            | 48490.00 (100)         |
| Medium     | 55550.00 (68.37)       | 96279.00 (31.63)           | 81250.00 (100)         |
| Large      | 68900.00 (61.41)       | 147260.00 (38.59)          | 112200.00 (100)        |

*Figures in the parentheses indicate percentages of total  
Source: Field Survey (2014)*

## **ANNUAL SAVINGS OF THE HOUSEHOLDS**

Average annual savings was determined by deducting annual expenditure from annual income. The average savings of small, medium and large farm households were Tk 6388, 15029 and 35060 respectively which was positively related with farm use (Table 10).

*Table 10: Annual Savings of the Sample Households*

| Households | Annual income (Tk) | Annual expenditure (Tk) | Annual savings (Tk) |
|------------|--------------------|-------------------------|---------------------|
| Small      | 54878              | 48490.00                | 6388                |
| Medium     | 96279              | 81250.00                | 15029               |
| Large      | 147260             | 112200.00               | 35060               |

*Source: Field Survey (2014)*

## **BALANCE SHEET ANALYSIS OF THE FARMS UNDER STUDY- CHAPTER**

Balance sheet is also known as net worth statement. It is a summary of assets, liabilities and owner's equity (net worth) at a given point of time. This statement shows the value of assets that would remain, if the farm business is liquidated and all the outside claims against the business are paid. A business is considered solvent, if the value of assets exceeds debt level. It is very useful for both and borrower for dealing with credit proposal.

### **ASSET**

Asset is something that is valuable and is owned. It can be defined as anything of value in the possession of the farm business or a claim for anything of value in the possession of others (Khan *et al.* 2012). Farm inventory, farm cash and accounts constitute the assets. Farm assets can broadly be classified into three main categories-current assets, intermediate assets and fixed assets. The balance sheet in Table 11. shows that the total assets amounted to Tk 42700, 127500 and 211800 for small, medium and large farms respectively. So, total assets maintained a positive relationship with farm size, which is also a common phenomenon in any economy.

### **CURRENT ASSETS**

Cash in hand or cash at bank and other assets in the possession of the farm, which may be liquidated in the normal operation of the business like products held for sales and supplies, are called current assets. These assets have a life time less

than one year. The liquidation of these items will have the least effect on the business to continue its operation.

It is evident from Table 11. that small farm had no cash at bank and farm supplies. Their current asset position also very low compared to other two categories of farm. Total current asset stood at TK 2200, 23400 and 62320 for small, medium and large farm respectively keeping positive relationship with farm size.

### ***INTERMEDIATE ASSETS***

Assets which are normally used up during the life of the business such as farm equipment and machinery, breeding and producing livestock can be categorized under this category. They have the life of more than one to ten years. The liquidation of these assets would have a significant influence on business activity. These assets are somewhat more difficult to liquidate than current assets.

Table 11. depicts that different types of farm equipment were the major intermediate asset irrespective of farm categories. The total value of intermediate asset was found to be TK 6000, 29500 and 44000 for small, medium, and large farms respectively with a positive relation to farm size.

### ***FIXED ASSETS***

Assets like land, building, house and land improvements are difficult to convert into cash. They are long-term permanent assets having time more than 10 years. These are not likely to be liquidated. If a major portion of these assets were liquidated, the business would also be terminated in most cases.

Land was the highest valued fixed asset followed by household furniture and buildings/houses irrespective of farm categories in the study area. Total value of fixed asset was positively related with farm size and it was Tk 32500 for small farm households, Tk 127500 for medium farm households and Tk 211800 for large farm households respectively (Table 11.).

### ***LIABILITIES***

A liability is defined as a claim by others against the farm business, like mortgages and accounts payable. Like assets liabilities are classified into. Three categories, i.e., current, intermediate and fixed liabilities. Taking all liabilities together, total liabilities stood at Tk 27100, 95100 and 126500 for small, medium and large farm respectively depicting a positive relationship with farm size (Table 11).

### ***CURRENT LIABILITIES***

Liabilities, which call for immediate payment, generally within one year and which cannot be deferred, are called the current liabilities. They include rents,

taxes and interest, plus that portion of principal on intermediate and long-term debt due within the next twelve months.

It is shown in Table 11. that credit purchase (account payables) was the largest current liability followed by interest due and unpaid rent for all the farm under study. Moreover small farms were out of tax burden although others are in such obligation. Total current liabilities amounted of Tk 13500, 19500 and 32100 for small, medium and large farm respectively having positive relation with farm size.

### ***INTERMEDIATE LIABILITIES***

They are also known as medium term liabilities, which can be deferred from the present time. They are not of immediate concern but have to be paid between one and ten-year period.

Only unpaid balance of intermediate loan, i.e., due of loan beyond 1 to 10 years was the intermediate liabilities of the farm under study. Table 11. indicates that intermediate liabilities were amounted to be Tk 3600, 32000 and 33400 for small, medium and large farm respectively with positive relation with farm size.

### ***LONG-TERM LIABILITIES***

Any deferred liability, which has to be met after ten years and generally upto 20 years, is called the long-term liability. They consist of mortgages and land contracts.

Loan on mortgaged of land and purchase of shallow-tube-well (STW) were the long-term liabilities of the farmers under study although the latter one was not found in the case of small farms. Like others, total liabilities were also positively related with farm size and it was Tk 10000, 43600 and 61000 for small, medium and large farms respectively (Table 11).

### ***NET WORTH***

Net worth was estimated by subtracting total liabilities from total assets. It reflects the owner's equity in the business and in other personal property. The net worth statement is one of the primary documents used by lending agencies in evaluating requests for new loans or extension of existing loans. It is also useful for calculating financial ratios of the farm business.

It is evident from Table 11. that net worth amount to Tk 15600 for small farm, Tk 32400 for medium farm and Tk 85300 for large farm with corresponding percentage of total assets of 36.53, 25.41 and 40.27 respectively. So, it can be said that although almost all asset and liability items increased with the increase in farm size, small farm exceeded medium farm in terms of assets accumulation at end of the investigation period.

Table 11: Balance Sheet for Farm Households as on 30 June, 2013

| Assets<br>Items  | Amount (Tk)      |                  |                  |
|--|------------------|------------------|------------------|
|  | Small            | Medium           | Large            |
| <b>I. Current assets</b>                                       |                  |                  |                  |
| 1. Cash in hand  | 1175.25          | 10525.76         | 20598.23         |
| 2. Cash at bank  | -                | 8645.34          | 27312.36         |
| 3. Farm supplies   | -                | 1797.11          | 5945.12          |
| 4. Crops and livestock held for sale                           | 1024.75          | 2431.79          | 8444.29          |
| <i>Total Current Assets</i>                                    | 2200.00          | 23400.00         | 62300.00         |
| <b>II. Intermediate assets</b>                                 |                  |                  |                  |
| 1. Farm equipment  | 6050.75          | 12178.45         | 18132.67         |
| 2. Livestock and poultry                                       | 449.27           | 10412.34         | 15564.34         |
| 3. Modern amenities  | 987.88           | 5010.39          | 7956.64          |
| 4. Others  | 512.10           | 1898.82          | 2346.35          |
| <i>Total Intermediate Assets</i>                               | 8000.00          | 29500.00         | 44000.00         |
| <b>III. Fixed assets</b>                                       |                  |                  |                  |
| 1. Land  | 24906.74         | 49304.78         | 75123.47         |
| 2. Buildings/houses  | 5156.21          | 8567.72          | 9523.87          |
| 3. Household furniture   | 2437.05          | 16727.50         | 20852.66         |
| <i>Total Fixed assets</i>                                      | 32500.00         | 74600.00         | 105500.00        |
| <b>Total assets (I + II + III)</b>                             | 42700.00         | 127500.00        | 211800.00        |
| <b>Liabilities</b>   |                  |                  |                  |
| <b>I. Current Liabilities</b>                                  |                  |                  |                  |
| 1. Credit purchase of seeds, feeds, fertilizers, repairs, etc. | 8230.65          | 13123.56         | 22325.57         |
| 2. Interest on intermediate and long term liabilities.         | 2678.25          | 2978.23          | 5056.21          |
| 3. Taxes   | -                | 512.67           | 1397.24          |
| 4. Rent  | 2591.10          | 2885.54          | 3320.98          |
| <i>Total Current Liabilities</i>                               | 13500.00         | 19500.00         | 32100.00         |
| <b>II. Intermediate Liabilities</b>                            |                  |                  |                  |
| 1. Intermediate or medium term loan (1 year to 10 year)        | 3600.00          | 32000.00         | 33400.00         |
| <i>Total Intermediate Liabilities</i>                          | 3600.00          | 32000.00         | 33400.00         |
| <b>III. Fixed Liabilities</b>                                  |                  |                  |                  |
| 1. Mortgage on land  | 10000.00         | 25475.24         | 32624.66         |
| 2. Loan for STW  |                  | 18124.76         | 28375.34         |
| <i>Total Fixed Liabilities</i>                                 | 10000.00         | 43600.00         | 61000.00         |
| <b>Total Liabilities (I + II + III)</b>                        | 27100.00         | 95100.00         | 126500.00        |
| <b>Net worth</b>   | 15600.00 (36.53) | 32400.00 (25.41) | 85300.00 (40.27) |
| <b>Total liabilities and net worth</b>                         | 42700.00         | 127500.00        | 211800.00        |

Figure in the parentheses indicate percentage of total assets

Source: Field Survey (2014)

## ***INCOME STATEMENT ANALYSIS OF THE FARMS UNDER STUDY- CHAPTER VI***

Income statement indicates how well the farm business has performed during the accounting period. From this, an idea of the returns to various resources after deducting the expenses and also about overall earnings of the farm can get. This is an important financial record because it measures the financial progress and profitability over a period of time. It is a summary of both cash and non-cash transactions of the farm business (Metcalf et al. 1976). Income statement is divided into two major categories, viz., income and expenses. Income includes cash receipts, sales of business and changes in inventory value of items of the farm. Expenses include operating and fixed expenses.

### ***CASH RECEIPTS***

The record when a cash payment has been allocated for the sale of a product. Cash Receipt simply means receiving cash from some sources. The source could be anything, a customer paying for the credit purchases, a person paying rent for using equipment, interest received on investments, additional funds brought in by the owner to expand the business etc. The income statement in Table 12. shows that the total cash receipts amounted to Tk 54878, 96279 and 147260 for small, medium and large farm respectively. So, cash receipts maintained a positive relationship with farm size, which is also a common phenomenon in any economy.

### ***CASH EXPENSES***

Cash expenses are the costs that are matched with revenues on the income statement. For example, cost of goods sold is an expense caused by sales. Insurance expenses, wages expense, advertising expense, interest expense are different types of expenses. Those are occurred during the period of income statement. Under the accrual basis of accounting, the matching is not based on the date that the expenses are paid. Expenses associated with the main activity of the business are referred to as operating expenses. Expenses associated with a peripheral activity are non-operating or other expenses. For example, a retailer's interest expense is a non-operating expense. A bank's interest expense is an operating expense.

### ***OPERATING EXPENSES***

A category of expenditure that a business incurs as a result of performing its normal business operations is called operating expenses. One of the typical responsibilities that management must contend with is determining how low operating expenses can be reduced without significantly affecting the firm's ability to compete with its competitors.

It is evident from Table 12. that, operating expenses stood at TK 8940, 25700 and 43300 for small, medium and large farm respectively keeping positive relationship with farm size.

### ***FIXED EXPENSES***

Fixed expenses is a cost that does not change with an increase or decrease in the amount of goods or services produced. Fixed costs are expenses that have to be paid by a farm, independent of any business activity. It is one of the two broad components of total cost of a business entity.

Total value of fixed expenses was positively related with farm size and it was Tk 39550 for small farm households, Tk 55550 for medium farm households and Tk 68900 for large farm households (Table 12).

### ***TOTAL CASH EXPENSES***

Total cash expenses are the sum of operating expenses and fixed expenses. Operating expenses generally vary with the size of the business operation, but fixed expenses do not do so during the period of operation

Taking all expenses together, total cash expenses stood at Tk 48490, 81250 and 112200 for small, medium and large farm respectively which maintains a positive relationship with farm size (Table 12.).

### ***NET CASH INCOME***

The gross cash income less all cash expenses, is called net cash income.

Net cash income amounted of Tk 6388, 15029 and 35060 for small, medium and large farm respectively with positive relation with farm size (Table 12).

### ***NET CHANGE IN INVENTORY***

Inventory generally means existing stock. In making adjustment for changes in inventory value, both changes in price and quantity should be taken into consideration. If the ending inventory value is greater than the beginning inventory value, it should be treated as a form of positive income. If opposite holds true it should be considered as negative income.

Table 12. indicates net change in inventory was amounted to be Tk 2800, 7500 and 17600 for small, medium and large farm respectively with positive relation with farm size.

## NET INCOME

Net income is calculated by taking revenues and adjusting for the cost of doing business, depreciation, interest, taxes and other expenses. This number is found on a farm's income statement and is an important measure of how profitable the company is over a period of time. The measure is also used to calculate earnings per share.

It is evident from Table 12. that net income amounted to Tk 9188 for small farm, Tk 22529 for medium farm and Tk 52660 for large farm with respective percentage of total cash expenses of 18.95, 27.73 and 46.93 respectively. So, large farm was the most profitable followed by medium and small farms in the study area.

Table 12: Income Statement of the Farm Households(01/07/2012 - 30/06/2013)

| Items  | Amount (Tk) |          |           |
|--|-------------|----------|-----------|
|  | Small       | Medium   | Large     |
| <b>A. Cash Receipts</b>  |             |          |           |
| 1. Crop sales  | 8429.43     | 29707.57 | 58809.66  |
| 2. Livestock sales   | 1056.07     | 3857.43  | 10850.34  |
| 3. Vegetables and fruits sales                                   | 2702.50     | 6120.69  | 12350.46  |
| 4. Business  | 6637.93     | 26939.31 | 30496.54  |
| 5. Services  | 30250.07    | 21717.80 | 28253.92  |
| 6. Daily labor   | 3520.51     | -        | -         |
| 7. Miscellaneous receipts  | 2280.49     | 4188.20  | 6499.08   |
| <i>Total cash receipts</i>                                       | 54878.00    | 96279.00 | 147260.00 |
| <b>B. Cash Expenses</b>  |             |          |           |
| <b>I. Operating expenses</b>                                     |             |          |           |
| 1. Hired labor   | 1398.33     | 8394.89  | 16468.78  |
| 2. Seeds, fertilizers, pesticides, insecticides, etc.            | 3601.41     | 6642.32  | 12567.87  |
| 3. Veterinary expenses.  | 1099.32     | 3921.67  | 7135.67   |
| 4. Fuel and repairs for machineries                              | 899.01      | 1855.13  | 3912.32   |
| 5. Interest on operating loan                                    | 891.39      | 1850.09  | 1891.53   |
| 6. Miscellaneous   | 1050.54     | 3035.90  | 1323.83   |
| <i>Total operating expenses</i>                                  | 8940.00     | 25700.00 | 43300.00  |
| <b>II. Fixed expenses</b>  |             |          |           |
| 1. Depreciation, interest on capital, working family labor, etc. | 8399.56     | 14397.32 | 27390.12  |

|                                   |                    |                     |                     |
|-----------------------------------|--------------------|---------------------|---------------------|
| 2. Family expenses                | 31150.44           | 41152.68            | 41509.88            |
| <i>Total fixed expenses</i>       | 39550.00           | 55550.00            | 68900.00            |
| <i>Total cash expenses (I+II)</i> | 48490.00           | 81250.00            | 112200.00           |
| <b>C. Net cash income (A-B)</b>   | 6388.00            | 15029.00            | 35060.00            |
| <i>Net change in inventory</i>    | 2800.00            | 7500.00             | 17600.00            |
| <b>D. Net income</b>              | 9188.00<br>(18.95) | 22529.00<br>(27.73) | 52660.00<br>(46.93) |

Figure in the parentheses indicate percentages of total cash expenses

Source: Field Survey (2014).

## **RATIO ANALYSIS OF THE FARMS UNDER STUDY- CHAPTER VII**

The net worth is only the absolute amount by which total assets differs from total liabilities at a point of time. This may not give the correct picture of the financial position of the borrower farms. Hence, it would be useful to further analysis to find out financial ratios. The lending agencies use these ratios in determining the solvency of the business and the ability of the borrowers to repay the loan.

With the help of the balance sheet, a number of ratios can be worked out to evaluate the capital position of farmers. Financial ratio analyses are useful to assess the performance of the farms under study. These ratios are:

1. Current capital ratio
2. Working capital ratio
3. Fixed capital ratio
4. Net capital ratio
5. Equity ratio and
6. Equity to asset-value ratio
7. Gross ratio
8. Operating ratio and
9. Rate of capital turn over.

$$\text{CURRENT RATIO} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

It measures the ability of the farm to meet its current liabilities. Higher the current ratio, the greater the short term solvency (Khan *et al.* 2012). A good current ratio would be indicated by 2:1. Lesser are always in favour of higher current ratio while the borrowers always try to keep it minimum because liquid asset does not earn anything for the farm.

Table 13. shows that the current ratio of small, medium and large farm households is 0.163, 1.20 and 1.94 respectively. It indicates that the short term solvency of the small households is very lower compared to medium and large households. The large households have relatively greater short term solvency than others. But no farm has sufficient short term solvency to meet the current debt obligation.

$$\textit{WORKING CAPITAL RATIO} = \frac{\text{Current and intermediate assets}}{\text{Current and intermediate liabilities}}$$

This is a measure of degree of financial safety over a period of time by comparing the present position of the business with that on some previous date. Higher the ratio safer will be the position of the farmer (Khan et al. 2012). A ratio of 2:1 is usually considered sufficient for the financial safety of the farm business.

The respective working capital ratios for small, medium and large farm households were found to be 0.596, 1.027 and 1.623. The ratio is lower for small households and higher for large households. It indicates that, the cash derive for small households will not be adequate to cover the liabilities of the same period. The large households were more capable to cover their liabilities with the cash derived in the same period.

$$\textit{FIXED RATIO} = \frac{\text{Fixed or long term assets}}{\text{Fixed or long term liabilities}}$$

This is calculated by dividing the total fixed assets by the total fixed liabilities. This ratio measures the financial safety of the business over a longer period of time. A fixed ratio of 2:1 usually indicates a fair financial position from the stand point of fixed assets (Khan et al. 2012). The lower the ratio, generally more debt has to be represented by long term obligations.

It is evident from Table 13. that the fixed ratio for small, medium and large farm households was 3.25, 1.711 and 1.729 respectively. Fixed ratio for small households is 3.25 which indicate a fair financial position. On the other hand medium and large households have more debt than other households.

$$\textit{NET CAPITAL RATIO} = \frac{\text{Total assets}}{\text{Total liabilities}}$$

This ratio measures the degree of financial safety over a specific period of time. It indicates the long liquidity position of the farm business. A net capital ratio of 2:1 means that all the assets of the farmer would produce sufficient cash to cover all his liabilities during the year.

The respective net capital ratios of small, medium and large farm households stood at 1.576, 1.341 and 1.674. Table 13. shows the long liquidity position for medium households is lower than small and large households. Moreover, all the assets of the large households produced more cash to cover all his liabilities during the year than other households.

$$\text{EQUITY RATIO} = \frac{\text{Net worth}}{\text{Total liabilities}}$$

The equity ratio is a concept similar to the net capital ratio. An equity ratio of 1:1 means that, the lender owns as much of the business as does borrower (*Khan et al.* 2012). Thus the ratio represents the creditor's contribution of capital to that of the farm.

It is recorded in Table 13. that equity ratio was 0.176 for small farm while it has 0.341 for medium and 0.674 for large farm. It means that the creditor's contribution of capital to that of the households is higher in the case of large households and lower in case of the medium households.

$$\text{EQUITY-TO-ASSETS VALUE RATIO} = \frac{\text{Net worth}}{\text{Total assets}}$$

This ratio measures the overall financial position of the farm business. Higher the ratio better will be the financial position of the farm business.

Table 13. shows that equity-to-asset value ratio appeared to be the highest for large farms followed by small and medium farms. It implies that the capability of producing net worth from 1 unit of assets is higher (0.403 unit) for large farm households and lower (0.254 unit) for medium farm households.

$$\text{GROSS RATIO} = \frac{\text{Total expenses}}{\text{Gross income}}$$

This ratio expresses the percentage of gross income absorbed by the total costs. The gross ratio for large farm household was 0.760 while it was 0.884 for small and 0.844 for medium farm households (Table 13). It indicates that about 88 percent of the gross income of small farms was absorbed by total expenses. The percentage of expenses was lower for large households and others have same percentage.

$$\text{OPERATING RATIO} = \frac{\text{Total operating expenses}}{\text{Gross income}}$$

It represents the proportion absorbed by operating expenses out of the gross income. The operating ratio stood at 0.163, 0.267 and 0.386 for small, medium and large farm households respectively. It says that in the case of small households about 16 percent of the gross income was absorbed by operating expenses. The percentage of operating expenses was lower for small household and was higher for large households.

$$\text{RATE OF CAPITAL TURN OVER} = \frac{\text{Gross income}}{\text{Total assets}}$$

This measure shows how efficiently the farm has used its capital resource to generate output. A large turnover ratio means one should try to use the capital assets more fully or sell some of them (Higgins 2001).

Table 13. depict that capital turnover rate was the highest for small farm (1.285) and was followed by medium (0.755) and large farm (0.530). It implies that small farm households used its capital resource more efficiently than others to generate output. A large turnover ratio means one is trying to use the capital assets more fully or is selling some parts of them.

### ***FINANCIAL STRENGTH AND WEAKNESS OF THE FARM UNDER STUDY***

Above discussion of ratios clearly mentions that none of the farms achieved all rounding performance in their operation, because none of them proved to be good in terms of each of the given ratios. But large farm household's were comparatively in better position because maximum of seven ratios (current ratio, working capital ratio, net capital ratio, equity ratio, equity to asset-value ratio, gross ratio and operating ratio) were favourable to it. It was followed by small farm households and medium farm households (Table 13). So, financial strength of large farm households was comparatively better than other farm households in the study area. Moreover, small farm households showed better performance than medium ones though their resource base was smaller.

Table 13: Ratios for different categories of farm households

| Name of the ratios          | Small                 |       | Medium                 |       | Large                   |       |
|-----------------------------|-----------------------|-------|------------------------|-------|-------------------------|-------|
|                             | Calculation           | Ratio | Calculation            | Ratio | Calculation             | Ratio |
| Current ratio               | $\frac{2200}{13500}$  | 0.163 | $\frac{23400}{19500}$  | 1.20  | $\frac{62300}{32100}$   | 1.94  |
| Working capital ratio       | $\frac{10200}{17100}$ | 0.596 | $\frac{52900}{51500}$  | 1.027 | $\frac{106300}{65500}$  | 1.623 |
| Fixed capital ratio         | $\frac{32500}{10000}$ | 3.25  | $\frac{74600}{43600}$  | 1.711 | $\frac{105500}{61000}$  | 1.729 |
| Net capital ratio           | $\frac{42700}{27100}$ | 1.576 | $\frac{127500}{95100}$ | 1.341 | $\frac{211800}{126500}$ | 1.674 |
| Equity ratio                | $\frac{15600}{27100}$ | 0.576 | $\frac{32400}{95100}$  | 0.341 | $\frac{85300}{126500}$  | 0.674 |
| Equity to asset-value ratio | $\frac{15600}{42700}$ | 0.365 | $\frac{32400}{127500}$ | 0.254 | $\frac{85300}{211800}$  | 0.403 |
| Gross ratio                 | $\frac{48490}{54878}$ | 0.884 | $\frac{81250}{96279}$  | 0.844 | $\frac{85300}{112200}$  | 0.760 |
| Operating ratio             | $\frac{8940}{54878}$  | 0.163 | $\frac{25700}{96279}$  | 0.267 | $\frac{43300}{112200}$  | 0.386 |
| Rate of capital turnover    | $\frac{54878}{42700}$ | 1.285 | $\frac{96279}{127500}$ | 0.755 | $\frac{112200}{211800}$ | 0.530 |

## SUMMARY

Bangladesh agriculture is characterized by different categories of farms where both structural and technological changes are occurring day by day. Modern seed-fertilizer-water technology is profitable but capital intensive which makes external financing necessary for many of the farms under operation. Due to shortage of capital and technological advancement, merger, acquisition, liquidation etc. are being done by the farm owners and Bangladesh agriculture has changed its trend from subsistence to commercial to some extent.

Several financial analyses are found in the case of commercial or industrial firms. But they are scant in the case of agricultural farms of Bangladesh. Financial analyses of different categories of farm households are almost absent.

Under these circumstances, an effort is made to explore the financial condition of different farm households along with their socioeconomic conditions. The present study reviews and find out the exact financial condition of the root level farm households. It also helps to identify the problems, potentials and financial

strength of farm households contributing to agricultural economy. The focus of the present research was to satisfy the following objectives:

1. To document the socioeconomic profile of the farms under study;
2. To prepare and analyze the balance sheet of different categories of farms of the study area;
3. To prepare and study the income statement of the farms under study;
4. To examine the strengths and weakness of the farms by calculating different financial ratios.

In order to reach the objectives, the present study was conducted in two villages under Mymensingh Sadar upazila of Mymensingh district to collect the reliable data. The villages were selected considering easy communication facilities and accessibility to the village. In all 100 sample households were selected where farmers were participating in different farm activities. The period of study was July 2012 to June, 2013 and the period of survey was January to March 2014. Tabular and statistical techniques were used for the analysis of the data

Results of the socioeconomic analysis suggest that socio-economic characteristics of the selected farm households were not different from those of other parts of the country. Average family size was found to be 5.80 persons where male and female was 3.20 and 2.60 respectively. About 34.95 percent of family members were illiterate, 10.81 per cent could write their name, 39.10 per cent had academic qualification of primary level, and 14.14 per cent had education above secondary level.

From the balance sheet it is evident that although almost all asset and liability items increased with the increase in farm size, small farm exceeded medium farm in terms of assets accumulation at end of the investigation period. Again from the income statement it is evident that large farm was the most profitable followed by medium and small farms in the study area.

From the result of the different ratios it is clear that none of the farms achieved all rounding performance in their operations, because none of them proved to be good in terms of each of the given ratios. But large farm households were comparatively of better position because maximum of seven ratios were favorable to than it was followed by small farm households and medium farm households. So, financial strength of large farm households was comparatively better than other farm households in the study area.

## ***CONCLUSION***

Socioeconomic development of an agriculture based economy mainly depends on the development of socioeconomic status of the farmers. So, plans, programs and strategies for betterment of farmers should be made considering their real situation like asset and liabilities position, solvency, efficiency, profitability, etc. Financial analysis is an analysis that provides such information that is useful for the management of managers, creditors, investors and others to judge the operating

performance and financial position of the farms accurately. This analysis gives better insight about the financial strength and weakness of the farm properly. Financial analysis is the starting point for making plans, before using any sophisticated forecasting and budgeting procedures. Thus financial analysis of different categories of farm bears importance for the socioeconomic development of the farmers as well as of the country as a whole. The present study reviews and find out the exact financial condition of our root level farm households. It will also help to identify the problems, potentials and financial strength of farm households contributing to our agricultural economy. The result of this study may be helpful to the policy makers and development workers in formulating plans for national agricultural development.

### ***RECOMMENDATION***

On the basis of the findings of the study, some recommendations can be made which are as follows.

1. Farm financial analysis should be done in all types of agricultural enterprises making specific size, level of technology and mode of financing. It certainly mitigate the dearth of written record of farm operations.
2. Results of financial analysis should be considered in decision making for making agricultural enterprises a successful one.
3. Modification of available techniques and innovation of new techniques should be done by the researchers so that appropriate tools can be possible for farm financial analysis.
4. A national project can be undertaken by the government so that some bench marks or standards can be set with which the researchers can compare their outputs.
5. The presents study is confined to a very little area. So, several studies of this nature are recommended to be undertaken in different parts of Bangladesh with required time, manpower and financial support.

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## **TOURIST FACILITIES AS A INNOVATIVE FACTORS OF DEVELOPMENT RURAL ENTREPRENEURSHIP IN THE REPUBLIC OF SERBIA**

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### **ABSTRACT**

*The aim of paper is to highlight the importance of developing innovative tourist facilities for the development of rural tourism and rural entrepreneurship in the Republic of Serbia. The development of rural tourism has a double effect on the development of rural entrepreneurship. On the one hand, the development of rural tourism is the result of the growth of entrepreneurial activity, where is the development of innovative tourism facilities of great importance. On the other hand, the development of rural tourism can initiate the development of rural entrepreneurship in order to meet differentiated needs of tourists. Authors consider that in the previous period despite potential resources, tourist facilities were not adequate placed and valued in rural tourism. Also, the authors consider that an innovative tourist facilities should based on tourism resources, to affirm the typical local ethno characteristics, especially ethnographic and gastronomic events that take place in rural areas. In order to develop tourist facilities it is necessary to define the potential modalities of their financing. The modalities of financing tourist facilities are of vital importance for the development of rural tourism because the majority subjects of rural tourism, due to the small tourist turnover, without financial means for self-financing.*

**Key words:** *Tourist Facilities, Rural Tourism, Rural Entrepreneurship, Financing, The Republic of Serbia*

**JEL Classification:** *R19*

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## **INTRODUCTION**

Rural tourism is a type of tourism that includes all tourist activities that can taking place in rural areas and which can be included in the tourist offer of these areas. It is clear that the basic conditions for the development of rural tourism rural areas and tourist activities, ie tourist facilities. Rural tourism can be defined as a form of rural entrepreneurship, which can initiate the development of rural economy and increase the employment rate of the rural population. The importance of rural tourism for the development of rural economy is derived from the multiplying the impact of tourism on economic development. Also, rural tourism is a labor-intensive activity, which has the important influence to increase the employment rate of the rural population.

Characteristics of rural tourism in terms of its economic importance, are: (a) the impact on the economic development of the local economic community and the region; (b) the impact on the growth of living standards of the local population; (c) the impact on social change in the daily life of the local population (Boyne, 2005). The development of rural tourism provides: (a) the stabilization of the regional development; (b) a complete valorization natural and anthropogenic values of rural areas; (c) preservation of traditions, culture and recognizable identity of rural communities; (d) the optimization of the rural and urban areas of the region; (e) increasing the competitive capacity the region as a tourist destination; (f) create a balance between all economic activities in the region. „In the economic sphere, tourism is a factor in stopping the migration, affects the raising of the educational and cultural level in the village areas, on the politicization and urbanization of farmers“ (Pejanović, 2013). According to the position of the World Tourism Organization the greatest economic importance of rural tourism is that this activity helps the elimination of poverty („tourism helps poverty elimination“ (Jing, 2006) .

Development of rural tourism "can not be seen only as economic growth, also in terms of ecological and social development" (George et al., 2009). According to (Kušen, 2007) rural tourism, a particularly the agritourism becomes an increasingly important participant in sustainable development of rural areas. The development of tourism in the countryside preventing disruption of natural ambience, affect the preservation of traditional folk architecture, ethnographic elements, distinctive ways of life and work, and often provides an incentive for the development of infrastructure, which contributes to the growth other economic activities, ie rural entrepreneurship. Based on the analysis, the author considers that a special benefit from the development of rural tourism can be "increasing the number of opportunities for social interaction of local people, who often live in relative isolation in rural communities" (Košić, 2012). According to (Ciani, 2003) rural tourism, ie agritourism, provide improving the quality of life on farms.

In order to develop rural tourism, economic and non-economic benefits, it is necessary to continuously develop rural tourist facilities. Today tourists seeking quality stay in rural areas and tourist facilities are important segment of the rural tourism offer. Tourist facilities encompass all activities that tourists can realize on-

farm and around. According to (Kušen, 2007) tourists after satisfying their primary life needs have free 10 to 14 hours a day for tourist activities. It is necessary to create new rural tourist products with quality tourist facilities.

Rural tourism is developing in the Republic of Serbia of 70-ies of 20. century, when in this type of tourism had three thousand beds (Muhi, 2009). Today there are no official data on the total number of participants involved in the this form of rural entrepreneurship. According to the assessment of local tourism organizations, the Republic of Serbia at the end of first decade of 21. century had 10,567 beds in rural households (Master Plan for Sustainable Development of Rural Tourism in the Republic of Serbia, 2011).

The aim of paper is to highlight the importance of developing innovative tourist facilities for the development of rural tourism and rural entrepreneurship in the Republic of Serbia. The development of rural entrepreneurship enable the development of rural economy and increasing employment of the rural population. The paper deals with uses the methods of analysis and synthesis.

### ***TOURIST FACILITIES AS A FACTOR DEVELOPMENT OF RURAL TOURISM***

According to the position of the World Tourism Organization (WTO), the most important factors for development of rural tourism are: (a) a segmented market; (b) touristic demand is focused on active vacations, education and experience; (c) an increase in the number of trips to their own arrangements; (d) the tendency towards more short breaks; (e) the need for higher security levels in closed tourist destinations; (f) rapid growth of rural tourism offer; (g) the growth of awareness of the population about the need for environmental protection (Bartlet, 2006).

Factors affecting the development of rural tourism can be divided into: (1) factors affecting the increase in tourist offer; (2) factors affecting the growth of tourism demand. Factors affecting the growth of rural tourism offer is complex and according to some authors, "the development of rural tourism is a long-term project" and its elements are: (a) people (expert) and the natural environment (clean); (b) a multi-sectoral approach to development; (c) to engage the local population in the drafting of development plans because "the local population has a better vision for the development of their region than of the state authorities" (Koščak, 1995).

According (Maier et al., 2005) an important role in the development of rural tourism and tourism in general, have a local economic community that must have a vision of development and to look at its consequences. Local communities should participate actively in the development process, but also to have a control function. More specifically, the development of rural tourism should be based on good management process, because it will be the only way to ensure its long-term viability. Also, according to cited authors, an important role in the development of rural tourism has a local population that are increasingly accept this activity as an opportunity prosperity.

According (Pejanović, 2013) development of rural tourism can be seen in two ways "on the one hand, the development is the result of entrepreneurial activities aimed at attracting tourists, on the other hand an increase in the number of tourists in rural areas leads to the generation of demand for tourist services, which leads to an increase in entrepreneurial activity at the local level."

Entrepreneurship activities are necessary and for the purpose of creating innovative tourist facilities due to the fact that they are a key factor of the development and rural tourism offer and rural tourism demand. Tourist facilities are based on tourism resources in rural areas and the need to provide their maximum valorisation of the tourism market. Rural areas in the Republic of Serbia are largely retained traditional architecture, possess valuable ethno characteristics, unpolluted environment, rich cultural heritage and different gastronomic offer, residents characterized by traditional hospitality. Based on the above it can be concluded that the Republic of Serbia has comparative advantages for the development of rural tourism. However, the average occupancy of accommodation capacities in rural tourism is only 4%, and it varies considerably during the year. In the Program of development of sustainable rural tourism in the Republic of Serbia were identified numerous shortcomings of rural tourism offer, within which is a lack of tourist facilities, respectively "lack of activity which allow enjoy the natural and cultural resources of rural areas" (Program razvoja održivog ruralnog turizma u Republici Srbiji, Službeni glasnik Republike Srbije br.85/2011).

Entrepreneurial activity and innovation is, also, needed for the development of rural tourism facilities. Subjects of rural tourism should be created tourism facilities independently, or in cooperation with tourism organizations and travel agencies. For example, a travel agency in the Republic of Croatia are very active in this segment of the rural tourism offer. The Ministry of Tourism organizes every year a selection on which rewards travel agency that has created the most innovative tourist facilities within rural tourism.

Travel agencies in the Republic of Serbia in the previous period were not sufficiently active in this segment of the rural tourism offer. Sometimes, despite the existence of tourism facilities are not used for the development of rural tourism. Certainly that is the reason, no agility, inadequate organization and insufficient coordination of tourism institutions, but also many other factors that influence the insufficient development of rural tourism in the Republic of Serbia. "Those are, primarily, political, economic, social, legal and regulatory, institutional, organizational and management factors" (Radović, 2015).

There are many possibilities for creating innovative tourist facilities. For example, in AP Vojvodina could create a tourism product that would include a visit to the monasteries of Fruska Gora, a tour of the authentic Perkovog farms in Neradin and tourist accommodation in rural households in Vrdniku and Cerevic. Tourists can be offered together with the hosts participate in the preparation of food, which would allow it to meet and adopt traditional recipes. This could be the first step towards the creation of tourist facilities on the farm. Organizing innovative tourism facilities would increase the occupancy of accommodation

facilities, as well as the income rural households, that could provide the development of rural tourism in the Republic of Serbia.

Innovative tourist facilities could be organized in protected natural areas that are located in rural areas. Within them, and for the sustainable development of rural tourism, it is necessary to pay attention to the formation and development of eco-tourism facilities. Tourist facilities could be based on the observation of typical bird species, and the development of ornithological, as a special form of rural tourism. Also, the tourist facilities in the protected areas of nature could be based on the education, ie of organizing classes for elementary school students, which would allow the development of botanical and educational forms of rural tourism. It is necessary to that within the protected natural areas "build an educational center for visitors, whose main function was the promotion of protected areas, education, and exchange of information and experience. Also, within these centers tourists would be able to obtain information on accommodation capacities in agricultural households in the immediate environment" (Radović et al., 2011).

In order to develop tourism facilities in agritourism could be organized training in agricultural households in the preparation of homemade brandy, juices and food for winter according to traditional recipes. These training sessions could to last and several days, and to organize accommodation for tourists in rural tourist households. Also, tourists should be offered and to buy these specialties, which would enable additional earnings from tourism and rural households that do not have accommodation facilities. In order to develop rural tourism in central Serbia could be organized adventurous activities such as rafting, hiking, skiing, in rural areas. Within the development of farm tourism, respectively development of tourism facilities, could be be organized training in the production of domestic products and traditional crafts, as is already the case at Dida Hornjaov farm in the vicinity of Sombor.

In order to develop other forms of rural tourism, such as manifestation, hunting, archaeological, historical, rural - congress, fishing, sports - recreation, it is necessary to develop tourist facilities interesting for this segment of tourists, as well as to provide accommodation facilities in rural tourist households in the immediate vicinity.

### ***EVENTS AS A FACTOR OF DEVELOPMENT TOURIST FACILITIES***

The emergence of of rural tourism in the world tourism market is related to the specific requirements of tourists, which in contrast to the experiences that can be acquired in mass tourism, they want through this type of tourism to see different cultures, customs, habits, ways of life and diet. These differences can best be seen in the rural areas considering that they are the guardians of tradition, as well as the peculiarities the characteristics of individual peoples and nations. The guardians of traditions and ethnographic and gastronomic events. Ethnographic events are kept from oblivion the traditional mode of agricultural production, old crafts, wealth of folklore, folk costumes, customs, beliefs and folk joy. Gastronomic events are the

"exhibition" of individual segments of the national cuisine, as well as relevant characteristics of each nation.

Table 1: *Ethnographic and Gastronomic Events in the area of Bačka*

| MUNICIPALITIES              | LOCAL COMMUNITY/<br>VILLAGE | EVENT   |
|-----------------------------|-----------------------------|---|
| <b>SOUTH BAČKA DISTRICT</b> |                             |   |
| Bač                         | Selenča                     | Bački kotlić; Festival tradicionalnih jela  |
| Bačka Palanka               | Silbaš                      | Etno šor; „Ala volem kolo da igram“, Štrudla fest; Dunavski bal Bostanijada   |
| Bački Petrovac              | Obrovac, Kulpin Sirig       | Festival kulena; Ovčarski dani; Uskrs u Kulpinu; Siriško prelo  |
| Bečej                       | Bačko Gradište              | Sajam starih zanata; Festival etno stvaralaštva-Etnos; Međunarodni palačinka fest.  |
| Novi Sad                    |                             | Festival meda; Dani mladog vina-portugizer; Festival folkloru; Interfest-festival vina;   |
|                             | Futog, Sirig                | Futoška kupusijada; Siriško prelo;  |
|                             | Rumenka, Kovilj             | Rumenačka pihtijada; Kovijska rakijada, „Parastos dudu“   |
| Srbobran                    |                             | Dani kulturne tradicije; Festival „Muzika naših predaka“; „Zlatna citra“  |
|                             | Turija, Nadalj              | Turijska kobasicijada; Petrovdanski dani  |
| Sremski Karlovci            |                             | Festival nacionalnih kolača; Festival kuglofa; Karlovačka berba grožđa  |
| Temerin                     |                             | Južnobački festival ludaje; Januarski međunarodni sajam vina; Pasuljijada   |
| Titel                       |                             | Tradicionalna izložba ručnih radova; Etno manifestacija „Pokaži da ti ja pokažem“; Kotlić pod titelskim bregom                            |
|                             | Šajkaš, Lok                 | Šajkaški ražanj; Mundijada; Pečurkijada   |
| Žabalj                      |                             | Škembijada; Zlatni kotlić; Žabaljski dani;  |
| <b>NORTH BAČKA DISTRICT</b> |                             |   |
| Bačka Topola                |                             | Sajam poljoprivrede, industrije i vašar zanata „Top expo“; Etno manifestacija „Našem rodu i potomstvu“                                    |
|                             | Bajša                       | Bajšansko prelo   |
| Subotica                    |                             | „Ukusi tradicije“; „Svinjokoljski dani“; Takmičenje žetelaca u ručnom košenju žita „Ris“; Dužijanica; „Interetno“                         |
|                             | Palić                       | „Berbanski dani“; „Butkicijada“; „Paličke vinske svečanosti“; „Dani mladog vina“; Festival kulture sveta; „Etnofest“; „Prvomajski uranak“ |
|                             | Hajdukovo                   | „Berbanski dani na Hajdukovu“   |
|                             | Šupljak                     | Festival belog luka   |
|                             | Donji Tavankut              | Pasuljijada   |
|                             | Bajmok                      | Festival bunjevačkih jela   |
| <b>WEST BAČKA DISTRICT</b>  |                             |   |
| Apatin                      |                             | Apatinske ribarske svečanosti   |
| Odžaci                      | Lalić                       | Rakijada; „Nošnja bal“  |
| Sombor                      |                             | Festival vina i hrane „Ravan grad Wine Fest“; Somborski kotlić  |
|                             | Bački Monoštor              | „Bodrog fest“   |
|                             | Sonta                       | Izložba starih zanata   |

Source: [www.srbija.travel/kalendar-dogadjaja](http://www.srbija.travel/kalendar-dogadjaja)

Ethnographic and gastronomic events represent a quality and interesting rural tourist facilities. It is estimated that yearly in the Republic of Serbia organizes more than 1,200 of such events. In order to increase the capacity utilization in rural

tourism and providing continuous visits of tourists it is necessary to create a special tourism product. He's supposed to link the visit to one of the ethnographic or gastronomic events with accommodation in rural tourist households. In order to promote ethnographic value it is necessary to build museums with ethno the setting, where the tourists have the opportunity to become more familiar with the culture, customs, folklore, folk costumes and old crafts. In the ethno museum should be located and exhibition of local gastronomy, as well as a souvenir shop, where the tourists could buy traditionally prepared gastronomic and produce food for the winter, as well as souvenirs. In order to build the ethno museum is need financial support of the local economic community. "The invested resources would be returned many times through ticket sales, that is today already the practice in ethno village in Sirogojno and in Trsic" (Radović et al.,2012).

The best known and most visited ethnographic and gastronomic events in the area of Backa, respectively in the South Backa, the North Bačka and the West Bačka districts are presented in Table 1. Based on these data we can conclude that most of the events organized in the city of Subotica, mostly in Palic. The most famous event is Dužijanca.

Table 2: Ethnographic and Gastronomic Events in the area of Srem

| MUNICIPALITIES          | LOCAL COMMUNITY/ VILLAGE   | EVENT   |
|-------------------------|--|---|
| <b>SREMSKI DISTRICT</b> |  |   |
| Indija                  | Pudarski dani; Dani meda; Sajam vojvodanskih vina; Etno festival |   |
|                         | Krčedin  | „Sremski peškir“; Etno manifestacija „Tradicionalno graditeljstvo kao srpski proizvod“; „Najbolja vina pod jednim krovom“ |
|                         | Beška  | Zlatni kotlić   |
|                         | Maradik  | Etno manifestacija „Maradička jesen“  |
| Irig                    | Šatrinci   | Pudarski dani; „Guščevijada“  |
|                         | Jazak  | Etno manifestacija „Jesen ide dunjo moja, kukuruzi već su zreli“  |
|                         | Rivica   | Dani vina; Bostanijada  |
|                         | Neradin  | “Patlidžinijada”  |
| Ruma                    | „Sremski kolač“;   | Gastronomska manifestacija „I kada prođu slave ostaje kolač“  |
| Šid                     | Berkasovo  | „Sremska kobasicijada“; „Sremska vinijada“  |
|                         | Erdevik  | „Sremska kulinijada“  |
| Sremska Mitrovica       | Šašinci  | Bostanijada   |
|                         | Zasavica   | Gastro manifestacija „Kotličijada – varjačom u Evropu“  |

Source: [www.srbija.travel/kalendar-dogadjaja](http://www.srbija.travel/kalendar-dogadjaja),

*Dužijanca* is a traditional ethnographic event. It is the largest cultural event of Bunjevci in Subotica Event is organizing mark the completion of the harvest and showing traditions, customs, religion and culture of this nation. The main event of the event is the surrender bread, baked from new flour, mayor of Subotica.

The most famous ethnographic and gastronomic events in the area of Srem district are presented in Table 2. Some events are traditional (Bostanijada in Rivica, Pudarski days), and some have only recently been established (“Patlidžinijada” in Neradin).

The event "Pudarski days" in Irigu the most famous tourist event in Srem. It is dedicated to “pudar”, guardian of the vineyard, and the vineyard, grapes and wine. The event has been held since 1993.

The most famous and most visited ethnographic and gastronomic events in Banat, respectively the North, the South and the Central Banat districts are presented in Table 3.

Table 3: Ethnographic and Gastronomic Events in the area of Banat

| MUNICIPALITIES                | LOCAL COMMUNITY/<br>VILLAGE  | EVENT  |
|-------------------------------|--|--|
| <b>NORTH BANAT DISTRICT</b>   |  |  |
| Kikinda                       |  | „Dani ludaje“  |
|                               | Rusko selo   | Festival gulaša  |
|                               | Mokrin   | „Gusanijada“   |
|                               | Idoš   | Dani vina i vinograda; Sabor frulaša „Škripi đeram“              |
|                               | Sajan  | Dani jeseni u korpi; Severnobanatske žetvene svečanosti          |
|                               | Novi Kozarci   | Pitijada krompiruša  |
| Ada                           |  | Dan starih zanata; Velikogospojinski vašar                       |
| Kanjiža                       |  | Svetostefanski dani novog hleba                                  |
| Senta                         | Gornji breg  | Međunarodno takmičenje u striženju ovaca i kujanju perkelta      |
| <b>CENTRAL BANAT DISTRICT</b> |  |  |
| Nova Crnja                    | Srpska Crnja   | Liparske večeri „Dani Đure Jakšića“                              |
| Žitište                       |  | Pilefest   |
|                               | Ravni Topolovac  | Pasuljijada  |
|                               | Srpski Itebej  | Banatska testijada   |
|                               | BanatskoKaradordevo  | „Karadordevska prela“  |
| Zrenjanin                     | Lukino selo  | „Banatske vredne ruke“; Međunarodni festival folklor „Lala“      |
|                               | Aradac   | Festival ljubavi i vina  |
|                               | Melenci  | Svetsko prvenstvo u kujanju čobanskog paprikaša                  |
| Novi Bečej                    |  | Velikogospojinske svečanosti                                     |
| <b>SOUTH BANAT DISTRICT</b>   |  |  |
| Alibunar                      | Janošik  | Dani višnje  |
| Bela Crkva                    |  | Belocrkvanski dani jabuke  |
| Kovačica                      | Debeljača  | „Kovački oktobar“; „Gulašijada“                                  |
|                               | Idvor, Padina  | Bostanijada; „Padinski dani kulture“                             |
| Deliblato                     | Etno manif. „Opušteno od srca“; Pihijada; Etno bazar „Ne lomite mi bagrenje“; Berba grožđa |  |
|                               | Kačarevo   | Slaninijada  |
|                               | Omoljica   | Gulašijada, Šunkafest  |
|                               | Vojlovica, B. Brestovac  | Žetelački dani; Paprikijada                                      |
| Opovo                         | Sakule   | Ovčarski dani  |
| Pančevo                       |  | Zlatni kotlić, Takmičenje u kujanju riblje čorbe                 |
|                               | Dolovo   | Štrudlijada, Dolovački sajam vina; Vinarijada Dolovo             |
| Vršac                         | Dani berbe grožđa; Praznične đakonije; Vinofest  |  |
| Kovin                         | Skorenovac   | Zlatni kotlić Kovina; Dani mađarske kuhinje; Skorenovačke večeri |

Source: [www.srbija.travel/kalendar-dogadjaja](http://www.srbija.travel/kalendar-dogadjaja)

*Slaninijada u Kačarevu*, village near Pancevo, is held from February 1988 as an event that represents the traditional gastronomy and gastronomic customs of the population of the southern Banat. Slaninijada in Kačarevo is the oldest gastronomic event in Vojvodina, which is based on products on meat. The most important emphasis is placed on the commercial nature of the event, as evidenced by sales about 150 tons of bacon and meat products during the event. In this way, provide substantial revenue for the local population, which engaged in agricultural activities. If the activity spread to rural tourism, providing accommodation capacities in Kačarevo and surrounding, the benefit of this event could be even higher. In order to develop rural tourism, it is necessary to create innovative tourist facilities. New tourist facilities could be visits Deliblato Sands, art gallery Naive Art in Kovačica, Birth House of Mihajlo Pupin in Idvor, numerous castles in Banat and the like. The development of innovative tourist attractions enables the tourists extend their stay in the area and after of the event. This would contribute to the achievement of higher revenue from rural tourism to the local population, as well as locally-economic community.

In the table 4. are presented the most significant ethnographic and gastronomic events in the area of the northeastern, eastern and southeastern Serbia, respectively in Branicevski, Borski, Zaječarski and Pirotski districts.

*Table 4: Ethnographic and Gastronomic Events in the area in the North, East and South Serbia*

| MUNICIPALITIES              | LOCAL COMMUNITY/ VILLAGE    | EVENT   |
|-----------------------------|-----------------------------|---|
| <b>BRANIČEVSKI DISTRICT</b> |                             |   |
| Golubac                     |                             | Sajam Dunava  |
| Kučevo                      |                             | „Homoljski motivi“  |
| Malo Crniće                 |                             | Gastro manifestacija „Stiško prelo“; Etno festival hrane i folklor  |
| Petrovac na Mlavi           |                             | „Prasićijada“; Sabor pčelara: Etno manifestacija „Bačijada“   |
| Požarevac                   | Poljana, Kličevac           | Uskršnji festival; Smotra folklornih ansabala sela Srbije   |
| Veliko Gradište             | Topolovnik                  | Alaske večeri   |
| Žabari                      | Četereže                    | „Četereško prelo“   |
| Žagubica                    | Osanica                     | Sabor vrela Homolja; Sabor frulaša  |
|                             | Laznica, Krepoljin          | Dani zdrave hrane „Priveg“; Dani bilja i gljiva; Spasovdanski dani  |
| <b>BORSKI DISTRICT</b>      |                             |   |
| Bor                         | Rajac                       | Etno susreti sela opštine Bor; Kosidba na Rajcu   |
| Kladovo                     |                             | Etnofestival  |
| Majdanpek                   | Crnajka, Rudna glava        | Etno manifestacija “Biseri Srbije“; „Sačuvajmo gajde i stare igre od zaborava“  |
|                             | Donji Milanovac             | „Porečki kotlić“  |
| Negotin                     |                             | „Sveti Trifun – vinarska slava“   |
| <b>ZAJEČARSKI DISTRICT</b>  |                             |   |
| Boljevac                    | Miroć, Ilino, Krivi vir     | „Crnorečje u pesmi i igri“; „Jorgovanfest“; „Ilinsko vrelo“; Smotra narodnog stvaralaštva „Timočka buna na izvoru crnog Timoka“ |
| Knjaževac                   | Balta Berkovac, Novo Korito | „Špricerfest“; Smotra narodnog stvaralaštva „Molitva pod Midžorom“; „Šipurijada“  |

|                          |              |   |
|--------------------------|--------------|---|
| Zaječar                  | Veliki izvor | Sajam suvenira „Zlatne ruke“; „Potekla voda studena“                                |
|                          | Vražognac    | Etno manifestacija „Vražognrački točak“   |
| Sokobanja                |              | „Zlatne ruke Sokobanje“   |
| <b>PIROTSKI DISTRICT</b> |              |   |
| Bela Palanka             |              | „Dani banice –takmičenje u pripremanju pita“  |
| Dimitrovgrad             |              | „Velikdenska Peraška“; Sajam balkanskog agrobiodiverziteta i seoskog nasleđa        |
| Pirot                    |              | Svetsko prvenstvo u pripremanju pirotepske peglane kobasice; „Pirotska jagnjijada“; |
|                          | Selo Temska  | Festival staroplaninskih jela   |

Source: [www.srbija.travel/kalendar-dogadjaja](http://www.srbija.travel/kalendar-dogadjaja),

*Kosidba na Rajcu* is a traditional ethnographic event. The first this event took place in 1892, when it held and the first National Fair. This event has become a tourist event since 1965. The event symbolically represents mobu and festive ending of mowing mountain meadows. The event has an international character. This event every year visit tens of thousands of tourists.

The most famous ethnographic and gastronomic events in the West Serbia, respectively in Zlatiborski, Kolubarski and Mačvanski districts are presented in Table 5.

Table 5: *Ethnographic and Gastronomic Events in the West Serbia*

| MUNICIPALITIES              | LOCAL COMMUNITY/ VILLAGE | EVENT  |
|-----------------------------|--------------------------|--|
| <b>ZLATIBORSKI DISTRICT</b> |                          |  |
| Arilje                      | Brekovo                  | Sajam meda; „Brekovačko prelo“   |
| Čajetina                    | Mačkat                   | Sabor trubača i smotra narodnog stvaralaštva; „Pršutijada“                         |
|                             | Šljivovica               | Šljivovički sajam domaće rakije „Rakijada“   |
|                             | Jablanica                | Etno manifestacija „Seoski višeboj“  |
| Sjenica                     |                          | „Dani sjeničke pite“; Vašari   |
| Kosjerić                    | Skakavci                 | Dečiji gastro festival „Varjačići“; Čobanski dani; Dani seoskog turizma            |
| Nova Varoš                  |                          | „Zlatne ruke“; Međunarodni dečiji festival „Licidersko srce“; „Zlatarska sirijada“ |
| Priboj                      | Pribojska banja          | Etno manifestacija „Zavičajno blago“; „Ilindanski dani“                            |
| Prijepolje                  |                          | „Za Prijepolje u cveću“; „Limski darovi – Zetovijada“                              |
| Užice                       | Mokra gora               | Međunarodni dečiji festival „Licidersko srce“; „Zavičajni dani Moke gore“          |
| <b>KOLUBARSKI DISTRICT</b>  |                          |  |
| Ljig                        | Banja Vrujci             | Sajam zdrave hrane i pića, starih zanata i narodnog stvaralaštva                   |
| Valjevo                     |                          | Etno manifestacija „Zlatni opanak“, Festival duvan čvaraka                         |
|                             | Brankovina               | Dani maline  |
|                             | Donja Toplica            | „Prela i posela“   |
|                             | Medvednik                | Dani gljiva  |
|                             | Stave                    | Dani kupine  |
| <b>MACVANSKI DISTRICT</b>   |                          |  |
| Bogatić                     |                          | „Boj na Dublju“; „Hajdučko veče“   |
| Koceljeva                   |                          | Festival zimnice   |
| Krupanj                     |                          | Dani krompira u Rađevini; Dani gljiva u Rađevini; „Krkušijada“                     |
|                             | Dobri potok              | Etno manifestacija „Nadigravanje za dukat“;  |
|                             | Mačkov kamen             | Dani medaša  |
| Loznica                     | Banja Koviljača          | „Lazarice“; „Pekmezijada“  |

|              |                           |  |
|--------------|---------------------------|--|
|              | Tršić<br>Gornja Koviljača | Međunarodna izložba gljiva i gljivarijada“; Smorta narodnog stvaralaštva „Dodole“<br>„Miholjski dani seoskog turizma“; Etno manif. „Moba“;<br>„Savinsko prelo“<br>Sajam vina i starih zanata |
| Ljubovija    | Drlače                    | Međunarodni drinski gastro festival; „Malinijada“  |
| Mali Zvornik |                           | „Gurmanijada“  |
| Šabac        | Radarska banja            | „Jesen u Radarskoj banji“  |

Source: [www.srbija.travel/kalendar-dogadjaja](http://www.srbija.travel/kalendar-dogadjaja),

*Zlatiborska Pršutijada* is a traditional gastronomic event which is held every January in the village Mačkat on Zlatibor. In this area the climate is due to the impact of "wind rose" suitable for the production of high-quality hams. At this event is organized every year by the selection of the best pork and beef smoked ham, a the event visit several thousand tourists.

The most famous ethnographic and gastronomic events in the territory of the Central Serbia, respectively in Rasinski, Moravički, Podunavski, Pomoravski and Šumadijski districts, as well as in rural areas the City of Belgrade, are presented in Table 6.

*Oplenačka berba grožđa* is a traditional ethnographic and gastronomic event, which is held since 1958. In parallel with this event, is held Sabor popular creativity, which contributes that to preserve the cultural heritage of region from oblivion.

Table 6: *Ethnographic and Gastronomic Events in the Central Serbia*

| MUNICIPALITIES             | LOCAL COMMUNITY/<br>VILLAGE   | EVENT  |
|----------------------------|---|--|
| <b>RASINSKI DISTRICT</b>   |   |  |
| Aleksandrovac              |   | „Župska berba“; Sajam vina   |
| Brus                       |   | Etno manifestacija „Zlatne ruke Brusa“   |
| Kruševac                   | Etno manifestacija „Eto, baš hoću“; „Čarapanijada“; „Saborovanje u Lazarevom gradu“ |  |
| Trstenik                   | Rujišnik  | „Trstenik na Moravi“; Dani vinara i vinogradara;<br>„Dani kupine“  |
| <b>MORAVIČKI DISTRICT</b>  |   |  |
| Čačak                      |   | Evropska smotra srpskog folkloru dijaspore i Srba u regionu  |
|                            | Mrčajevci, Prislonica, Banja Gornja Trepča  | „Kupusijada“; Sabor frulaša Srbije „Oj, Srbijo“<br>Izbor najlepše rakije „Šumadijska kraljica“   |
| Gornji Milanovac           | Ozrem   | „Mud(r)ijada“  |
| Ivanjica                   |   | Etno manifestacija „Zvuci Golije, Javora i Mučnja“   |
|                            | Prilike<br>Kušići   | Festival izvorne srpske pesme, Festival dečijeg folkloru „Svetlost na brežuljku“;<br>Etno manif. „Javorski sabor dvojničara i starih muzičkih instrumenata |
| Lučani                     | Guča  | Smotra muzičkog stvaralaštva „Raspevano Dragačevo“<br>Dragačevski sabor trubača  |
| <b>PODUNAVSKI DISTRICT</b> |   |  |
| Velika Plana               |   | „Karađorđevi dani gurmanluka“  |
| <b>POMORAVSKI DISTRICT</b> |   |  |
| Čuprija                    | Manastir Ravanica   | Etno manifestacija „Moravo, moje more“   |

|                            |                   |  |
|----------------------------|-------------------|--|
| Despotovac                 | Beljajka          | Festival etno hrane  |
| Jagodina                   |                   | Petrovdanski etno sajam; „Tortijada“   |
| Paraćin                    | Trešnjevica       | „Najtorta“; Etno manifest. „Budi in, upoznaj Paraćin“; Dani vina   |
| Rekovac                    | Manastir Kalenić  | Etno manifestacija „Prođoh Levač, prođoh Šumadiju“   |
| Svilajnac                  |                   | Gastronomska manifestacija „Resavski kotlić“   |
| <b>ŠUMADIJSKI DISTRICT</b> |                   |  |
| Arandelovac                |                   | „Gulašijada“; Etno manifestacija „Šumadijski opanak“; Velikogospojinski vašar; Etno bazar; Susreti proizvođača i ljubitelja vina |
| Batočina                   | Brzan             | Etno manifestacija „Obredni hlebovi“<br>Sabor narodnog stvaralaštva „Sveti prorok Ilija“   |
| Kragujevac                 |                   | Etno manifestacija „Zlatno zrno Šumadije“  |
| Lapovo                     |                   | Etno manif. „Dan Moravskih šarenica“; „Sveti Trifun, vinogradarska slava“  |
| Topola                     |                   | „Đurdevdanski dani vina i rakije“; Sabor narodnog stvaralaštva „Oplenačka berba grožđa“  |
|                            | Bukulja, Stragari | Prvomajski uranak; „Šumadijski dani šljive“  |
| <b>CITY OF BELGRADE</b>    |                   |  |
| Lazarevac                  | Perućac           | Festival srpskih vina; Festival posne hrane  |
| Mladenovac                 | Jagnjilo          | Međunarodni festival folklor; „Jagnjijada“   |
| Zemun                      |                   | Etno manifestacija „Božični praznici“  |
| Smederevska Palanka        | Azanja            | Dani Azanjske pogače   |

Source: [www.srbija.travel/kalendar-dogadjaja](http://www.srbija.travel/kalendar-dogadjaja)

*Župska berba u Aleksandrovcu* is a traditional ethnographic and gastronomic event held since 1963 and has grown into one of the most important tourist events in the Balkans. The event is marking as celebration of the grape harvest. The event is every year visit by more than 400 thousand tourists and could be an important basis for the development of rural tourism. For this purpose need is to provide adequate accommodation capacities in rural tourist households, as well as to create additional tourist facilities.

Table 7: *Ethnographic and Gastronomic Events in the South, Southwestern and Southeastern Serbia*

| MUNICIPALITIES                      | LOCAL COMMUNITY/<br>VILLAGE                                 | EVENT  |
|-------------------------------------|---|--|
| <b>KOSOVSKI DISTRICT</b>            |   |  |
| Štrpce                              |   | Dečija smotra folklor Kosova i Metohije                    |
| <b>PČINJSKI DISTRICT</b>            |   |  |
| Bujanovac                           |   | Etno manifestacija „Zlatne ruke Bujanovca“                 |
| Surdulica                           | Vlasina   | „Zlatne ruke“, Vlasinski kotlić                            |
| Vladičin Han                        |   | Vidovdanski dani   |
| Vranje                              | Etno manifestacija „Stari dani“; Etno sajam; Smotra folklor |  |
|                                     | Vranjska banja  | „Dani karanfila“   |
| <b>TOPLIČKI DISTRICT</b>            |   |  |
| Kuršumlija                          |   | „Prvi glas Toplice“  |
| Prokuplje                           |   | Sajam višnjara „Dani višnje“                               |
| <b>KOSOVSKO-MITROVAČKI DISTRICT</b> |   |  |
| Leposavić                           | Sočanica  | Etno manifestacija „Gospojinski sabor“; „Zlatna frula KiM“ |
| Vučitrn                             | Priluzje  | Etno manifestacija „Starosrpski izvori“                    |

| RAŠKI DISTRICT      |   |   |
|---------------------|---|---|
| Kraljevo            | „Pasuljijada“; Dani meda; Smotra dečijeg folklor a i ansabala Srbije                          |   |
|                     | Ratina  | „Projada“; Smotra narodnog stvaralaštva dece Srbije   |
|                     | Kopaonik  | „Dani borovnice“  |
| Vrnjačka banja      |   | Smotra narodnog stvaralaštva „Zlatne niti prela i posela“   |
| JABLANIČKI DISTRICT |   |   |
| Bojnik              |   | Etno manifestacija „Pustorečki dani“  |
| Lebane              | Izložba starih zanata; Etno   | manifestacija „Kulturno leto u Lebanu“  |
| Leskovac            |   | „Roštiljijada“  |
| Medveđa             | Maravac, Sijarinska banja   | Etno manif. „Dani frule u Medveđi“; „Kosidba na Marovcu“; „Gejzerske noći“; „Zlatni kotlić gejzera“ |
| Vlasotince          |   | „Vinski bal“  |
| NIŠAVSKI DISTRICT   |   |   |
| Aleksinac           | Pekarski dani; „Na Moravi vodenica stara“   |   |
|                     | Ruševac   | Sabor paprikara   |
|                     | Eredetin  | Dani jagoda   |
| Niš                 | Etno sajam; Dani bureka; Rakija brend; Dani vina i meraka; Salon vina i čokolade „Dolče Vita“ |   |
|                     | Niška banja   | „Pihijada“  |
| Svrljig             |   | „Belmužijada“   |

Source: [www.srbija.travel/kalendar-dogadjaja](http://www.srbija.travel/kalendar-dogadjaja),

The most famous ethnographic and gastronomic events in the southern and southwestern Serbia, respectively in Nisava, Jablaničkom, Raškom, Topličkom, Pčinjskom, Kosovskom and Kosovsko-Mitrovačkom district are presented in Table 7. In this area there is a Sijarinska spas with healing hot water. Therefore, in this area should take advantage of the opportunities for development of the spa tourism, as a special form of rural tourism.

### **MODALITIES FINANCING THE TOURIST FACILITIES**

According to the survey (Radovic, 2015) it was concluded that the self-financing had a dominant role in the structure of sources financing, that used subjects of rural tourism in the Republic of Serbia in the previous period. Bearing in mind, that the current state of development of rural tourism in Serbia is characterized by a very low occupancy rate (about 4%), are necessary sources of external financing the innovative tourist facilities. Also, favorable external financing sources are needed for residents of rural areas who primarily relying on agriculture in order to their reorientation to rural tourism. For example, according to the World Bank study “Rural vulnerability in Serbia” in rural areas where there is no natural conditions for agricultural production, “about a million people live below the poverty with two dollars a day, so that these subjects rely almost exclusively on agriculture, ie for 68% of households agriculture is the main source of income” (Đorđević-Milošević, Milovanović, 2012). Therefore, in particular in these areas required the development of rural entrepreneurship in the context of non-agricultural activities.

Table 8: Potential modalities financing the innovative tourist facilities

| <b>Modalities financing</b>             |
|---|
| (1) Subsidies - state incentives        |
| (2) Self-financing                      |
| (3) International donations             |
| (4) Joint ventures                      |
| (5) securities: action, corporate bonds |
| (6) Investment funds                    |
| (7) Leasing                             |
| (8) Microcredit organizations           |
| (9) "Business angels"                   |
| (10) Savings and Credit Cooperatives    |
| (11) Foreign Direct Investment          |
| (12) Bank loans                         |
| (13) Public-private partnerships        |

Source: Radović, 2015, p. 193.

Potential modalities financing the development of rural tourism facilities, are shown in Table 8, can be grouped into:

1. the mode of financing based on the financial support of the state;
2. the mode of financing based on banking products;
3. the mode of financing based on foreign sources of financing;
4. the mode of financing based on market instruments;
5. the mode of financing based on their own sources of financing;
6. the mode of financing based on a combination of public and private funds;
7. the mode of financing based on a combination of domestic and foreign funds;
8. the inovative modalities financing.

*The mode of financing based on the financial support of the state* are subsidies, ie premiums. State financial support for the development of tourism facilities should be a key modality of financing in the current initial stage of organized development of rural tourism in the Republic of Serbia. Subsidies, ie state premiums could be introduced primarily to stimulate travel agencies to actively create tourist facilities within rural tourism. The selection the most innovative travel agencies could organize the Ministry and / or the Regional Secretariat on an annual or monthly basis (Radovic, 2015).

*The mode of financing based on banking products* are loans and financial leasing. Credit is the potential modalities financing the development of rural

tourism facilities, bearing in mind that the insolvency of a common feature of rural tourism subjects. Application possibilities of financial leasing in order to create innovative tourist facilities and organization active stay of tourists in rural areas, for example, the purpose of procurement of the necessary equipment (bicycles, boats, boats, buses, cars, etc.) (Radovic, 2015).

*The mode of financing based on foreign sources of financing* are international grants and foreign direct investment. International donations, as well as the modalities financing tourist facilities, could be implemented to finance, for example, the construction of swimming pools, rehabilitation centers, parks and playgrounds and in the attractive tourist villages. Foreign direct investment could be used as a potential modality of financing for the development of tourist facilities that have secure sales in the tourism market. In this way would be implemented investments in the spa complexes (spas, which are located in rural areas), and in order to build facilities that would be used for treatment or for prevention (spa centers) (Radovic, 2015).

*The mode of financing based on market instruments* are securities and investment funds. Securities and investment funds are a suitable modality of financing rural tourism subjects who operate as legal entities (hotels), which would in this way be able to finance the construction of sports complex, spa centers and the like.

*Self-financing* is one of the potential modalities financing of rural tourism.

Bearing in mind that this economic activity is mainly based on agriculture, internal sources of self-financing, in the initial phase represents the accumulated net income from agricultural production.

In the developed stage of an internal source of financing can be realized and the net income from rural tourism. Self-financing has the potential modalities financing tourist facilities in the subjects which are already significantly developed its own tourist business.

*The mode of financing based on a combination of public and private funds* are public-private partnerships. Public-private partnerships, as well as the modalities financing tourist facilities, could be implemented to ensure the conditions for cycling, running or walking, where the group (association) rural tourist households financed the purchase of the necessary equipment (bikes), a municipality providing the necessary conditions (bicycle path) (Radovic, 2015). Public-private partnerships could be applied to finance organization ethnographic or gastronomic events, festivals or construction of the museum dedicated to folk creativity.

*The mode of financing based on a combination of domestic and foreign funds* are joint ventures. Joint ventures can be realized in cooperation of local rural tourism entities (rural tourism households, rural hotels or ethno village) with foreign investors, which will jointly be able to finance the development tourist facilities in a particular area. In this way, financing could be actively involved as representatives of the diaspora, originating from the municipality in which the planned investments. To this end, we could finance, for example, aqua park within the municipality that has been developed rural tourism.

*The inovative modalities financing* are “business angels”, micro-credit organizations and savings and credit cooperatives. "Business angels" in addition to the financing can be involved in the development tourist facilities, using their business contacts, could provide, "customers" abroad. For example, it is possible to invest in the construction of convention center where they can organize various professional gatherings in the field where "business angels" could mediate the arrival of scientists, professionals, ie tourists (Radovic, 2015). Micro-credit organizations and savings and credit unions, as well as innovative financial institutions in the domestic financial system could be used to finance investment smaller amounts and in order to develop tourist facilities in rural areas, such as parks and children's playground.

## ***CONCLUSION***

In the Republic of Serbia there is significant potential for the development of rural tourism, but they are not adequately exploited and valued on the domestic and international tourism market. Availability accommodation capacity is only about 4%, and the tourist season is very short. In order to develop rural tourism and to attract modern tourists necessary are innovative, diverse and high-quality tourist facilities, which should be the result of entrepreneurial activity of the rural population. For this purpose, we could take advantage of the tourist potential of numerous ethnographic and gastronomic events that are held throughout the year in the Republic of Serbia. In order their adequate valorization in the rural tourism, it is necessary to highlight the originality of the tourist events. Also, it is necessary to create tourism products, which would include the tourist accommodation in rural households. In order need are the entrepreneurial activities of the rural population create innovative tourist facilities, which ensure longer stays tourist and additional employment of the rural populations.

Subjects of rural tourism in the Republic of Serbia, due to low occupancy of accommodation capacities, have limited options of self-financing develop of tourism facilities. For this purpose are necessary external sources of financing, ie need to define the modalities of financing the development of potential tourist attractions. The development of innovative tourism facilities would enable the development of rural tourism and rural entrepreneurship. Considering significant multiplicative effect of tourism on the development of rural economy, rural tourism development could have a significant impact on rural, and regional development in the Republic of Serbia.

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# **PROJECTION ON EXCISE REVENUE GENERATION IN THE BUDGET OF THE REPUBLIC OF SERBIA FROM 2016 TO 2030**

Mirjana Stevanovic<sup>29</sup>

Jelena Barac<sup>30</sup>

## **ABSTRACT**

Throughout history, the state kept on spreading itself and in that way it was spreading its jurisdiction, functions and all of that requires large financial resources. Therefore, the tax administration is the one which should provide those financial resources. That is really hard to pull off in practice, hence there are frequent reforms of the tax system. Frequent changes aren't good for the economic and tax stability. The main reform in Serbia is the tax reform, whose goal is to provide tax payers with a job, salary and to pay their taxes. On the other side, the increase of tax revenue is required to decrease the deficit of the budget, decrease the debt of the state and to provide requirements for encouraging the industrial growth. It is a fact that the majority of tax payers, if not all of them, would like to have lower taxes. Taxes have always presented a load for the ones who pay them and that will always stay that way. Frequent changes of tax regulations, changing the rates of taxes, large tax debts, frequent reprogramming of debts, public costs which are larger than public revenues indicate the instability of our country's tax system. Primary goals of the tax system reform in our state have to be: adjusting to the European regulation, collecting larger taxes, taxation in accordance with the economic strength of the tax payers.

This paper dealt with the analysis of excise crediting in the Republic of Serbia in the period from 2005, up to 2015 with a projection until 2030.

The results of this study should be useful for the understanding of the importance of a large number of tax payers of excise taxes (taxes on products) both in the present and in the future.

The aim of the paper should be to show us and indicate the necessity of: adopting the Law on Excise Tax which would be in effect for decades without requiring any changes and amendments, and with the previous analysis of the efficiency or inefficiency of earlier fiscal policy in our country; the Law se prevents tax evasion. There is the necessity of harmony between economic, financial and tax policy, the need to adopt measures that would be aimed at: increasing excise revenue generation in the budget of the Republic of Serbia, the equality of everybody in front of the Law, reducing gray economy, the elimination of reprogramming.

**Key words:** Tax Policy, Tax Reform, Taxpayers, Tax Principles, Excise

**JEL Classification:** H25, H27

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## ***INTRODUCTION***

Taxes are the main form or instrument of forming public revenues to cover budget expenditures and public needs. In order to emphasize the importance of taxes for the state, many financial theoreticians call a modern state "a tax state". As a historical category, the tax changed parallel to changes in political, socio-economic and other relations, in all periods. They are a direct reflection of these relationships or systems. The place and nature of the tax and its role in the total social income changes with the development of the state, its institutions and interventionism.

Taxes are not a form of voluntary, but mandatory character. Taxation is as old as government. Taxation of national income is a very complex economic, financial, social and political problem. The main objective of taxation is to ensure sufficient funds to carry out various functions of the state (Softic, 2013, p. 152).

In financial theory, the public revenues and public expenditures are constituents of the tax system, i.e. the system of financing public spending in the broadest sense of the word (Kumalic, 2012, p. 32).

The tax system in Serbia today consists of seven tax forms: (Karadivic et al., 2013, cit., p. 31)

- Corporate income tax
- Personal income tax
- Property Tax
- Excise
- Value added tax
- Tax on Use, Possession and Carrying of Goods
- Tax on non-life insurance premiums.

Two main levers that the government implements are the tax (fiscal) policy and monetary and credit policies. Tax policy is a significant sphere of action and component of economic policy which contributes to achieving the set goals.

Tax policy as part of economic and social policies, should ensure the efficient functioning of state institutions through the collection of public revenues in accordance with socially acceptable aims and objectives. To achieve the objectives and tasks of economic policy, tax policy uses a number of tax forms. Tax policy should be subordinated to the economic policy of the country (Petrovic, 1988, cit., p. 20)

## ***EXCISE REGULATIONS***

Excise taxes are considered to be the oldest form of consumption tax. The emergence of excise can be seen in the ancient times and they were also widespread in the Middle Ages. Excise tax systems have always played an important role. Their importance is still large although they are, to some extent, suppressed before the expansion of value added tax. Taxes on consumption or indirect taxes are one of the most important categories of revenue in the budgets of

modern states. There is no tax system where there is not at least one form of consumption tax. The object of taxation for these taxes is the sale of products and services. (Djordjevic, 2015,p. 39).

Positive reasons for the introduction of the excise tax system are: (Stojkovic, 2014, p. 4)

1. Fiscal (excise tax is a major source of tax revenue);
2. ease of collection;
3. a small number of taxpayers;
4. progressive taxation of consumers of luxury products;
5. Environmental Goals (lower price of unleaded petrol compared to ordinary gasoline ...).

Negative reasons: (Stojkovic, 2014. pp. 4-5)

1. they are regressive because they tax mass consumption in which individuals with low earnings take part;
2. they violate the principle of economy, because the system of excise collection and control is quite expensive;
3. they are very unpopular with the tax payers and destinators;
4. they can impair the sale of domestic excise products (tobacco industry).

However, in theory and in practice, economists have different views when it comes to the advantages and disadvantages of excises. According to professor Popovic "In modern literature we don't neglect the disadvantages of excise, but now the emphasis is placed on non-compliance with the economic tax principles, especially the principle of efficiency of taxation: the introduction of a selective tax on consumption, in fact, violates the neutrality in the choice of producers and consumers. (Popovic, 2010,p. 424)

Excise duties belong to the group of indirect taxes, which are often called deceptive taxes, and they are thus characterized by being deceptive and by the fact that a taxpayer transfers the tax burden to another person. Characteristics of excise duties: (Stevanovic, 2012,pp. 146-147)

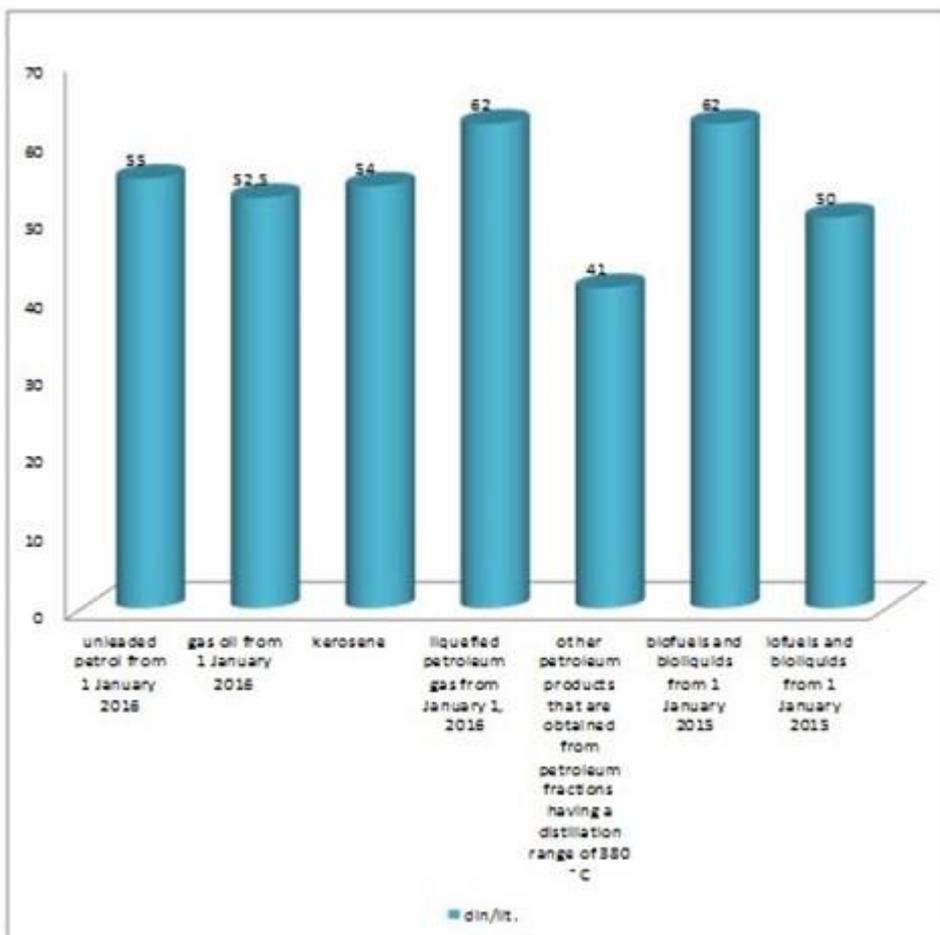
- the oldest tax on products;
- regular income for the state;
- abundance;
- they are unfair because they do not respect the principle of paying taxes according to the taxpayer's income;
- a simple system of billing and collection;
- it refers to mass production products;
- fiscal nature;
- excise taxpayer is a producer, but the actual economic taxpayer is the final consumer.

According to Professor Bingulac "Today, to a certain extent, excises are suppressed before the expansion of the value added tax, but their significance remains high." (Bingulac, 2006, p. 150). Excises were distinguished from general sales tax in 2001, and regulated by a special law. An excise tax is a form of surtax

or excise duties and it applies to specific products, whose circulation is controlled by the State (Gajic et al., 2012, p. 90).

In the period from 2001, the Excise Tax laws have been adopted and amended several times which is a weakness of our country's tax system. The new Law on Excise Duties which was adopted in the context of tax reform in 2001, has undergone nine amendments. Having isolated it from sales tax in 2001, the excise tax is now regulated by a specific law. Frequent changes of tax laws are not good for economic and fiscal stability.

Consumption of certain, mostly monopolistic, product / products of mass consumption is taxed by excise tax. Products taxed by excise: tobacco products, petroleum products, coffee, alcoholic beverages, electricity.... The excise tax liability commences when excise products are (Law on Excise): 1. produced in the Republic of Serbia; 2. imported in the Republic of Serbia. Excise Law regulated the amount on which the excise is paid on oil derivatives, biofuels and bioliquids of excise.



*Graph 1: Excise duty on oil derivatives, biofuels and bioliquids*

*Source: authors based on the Law on Excise*

*Table 1: The amount on which the reduced excise tax is paid according to the customer purposes - the final user of petroleum products, biofuels and bioliquids*

|    |  |               |
|----|--|---------------|
| 1. | for gas oil referred to in paragraph 1, item 3) of this Article which is used:   |               |
|    | as motor fuel for transport purposes for the transport of people and goods, including:   |               |
|    | - since 01/01/2016   | 45.50 din/l   |
|    | For heating  | 2.50 din/l    |
|    | - since 01/01/2016   | 7.00 din/l    |
|    | energy as fuel in the production of electricity and heat   | 0 din/l       |
|    | for industrial purposes  | 0 din/l       |
| 2. | kerosene from paragraph 1, item 4) of this Article which is used for industrial purposes   | 0 din/l       |
| 3. | liquefied petroleum gas referred to in paragraph 1, item 5) of this article which is used:   |               |
|    | as motor fuel for transport purposes for the transport of people and goods, including:   |               |
|    | - since 01/01/2016   | 23.00 din/ kg |
|    | For heating  | 4.40 din/ kg  |
|    | - since 01/01/2016   | 6.00 din/ kg  |
|    | for industrial purposes  | 0 din/ kg     |
| 4. | other petroleum products that are obtained from petroleum fractions having a distillation range of 380 °C used for industrial purposes     | 0 din/ kg     |
| 5. | Biofuel from paragraph 1, item 7) of this Article which is used as motor fuel for transport purposes for the transport of people and goods | 39.50 din/l   |
| 6. | bioliquids from paragraph 1, item 7) of this Article which are used:   |               |
|    | For heating  | 2.50 din/l    |
|    | energy as fuel in the production of electricity and heat   | 0 din/l       |

*Source: authors based on the Law on Excise*

The law which regulates the energy sector defines the following: 1. biofuels - liquid or gaseous fuel for transport, produced from biomass; 2. bioliquids - liquid fuels for electricity and heat production and energy for heating and cooling, produced from biomass, apart from traffic.

Tobacco products that are produced and marketed in accordance with the law governing the production and marketing of tobacco and tobacco products include cigarettes, cigars, cigarillos, smoking tobacco and other tobacco products. Tobacco products that warm up during use and don't combust represent fireproof tobacco.

If the calculated excise tax on cigarettes, smoking tobacco and other tobacco products is lower than the minimum excise defined by law on excise, the minimum excise duty is paid.

*Table 2: EU rules on the minimum excise burden on tobacco products other than cigarettes*

| Product                  | 1/1/2011                  | 1/1/2013                   | 1/1/2015                   | 1/1/2018                   | 1/1/2020                   |
|--------------------------|---------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Nice cut smoking tobacco | 40% ppc<br>or<br>40eur/kg | 43% ppc<br>or<br>47 eur/kg | 46% ppc<br>or<br>54 eur/kg | 48% ppc<br>or<br>60 eur/kg | 50% ppc<br>or<br>60 eur/kg |
| Cigars and cigarillos    | 5% mpc<br>or 12 eur/kg    |                            |                            |                            |                            |
| Other tobacco            | 20% mpc<br>or 22 eur/kg   |                            |                            |                            |                            |

*Source: [www.clds.rs/newsite/Akcizna%20politika%20u%20Srbiji.ppt](http://www.clds.rs/newsite/Akcizna%20politika%20u%20Srbiji.ppt) access 02/06/2016*

Minimum excise tax is, on: (Law on Excise)

1. Cigarettes - 100% of the total excise duty established for the category of the weighted average retail selling price of cigarettes;
2. Smoking tobacco and other tobacco products (cut tobacco, pipe tobacco, chewing tobacco and snuff) - 100% excise duty established for the category of the weighted average retail selling price of smoking tobacco and other tobacco products, but not less than:
  - 70% of the minimum excise tax on 1,000 cigarettes established for the category of the weighted average retail selling price of cigarettes, from 1 January 2016.

*Table 3: Calculation of the weighted average retail selling price*

|   | <b>Putting a ratio between</b>  |
|---|---|
| <b>Cigarettes</b>                                 | the total value of all cigarettes that are placed on the market at retail prices / total quantity of cigarettes released into circulation in the RS in the previous six months                  |
| <b>smoking tobacco and other tobacco products</b> | the total value of tobacco, tobacco products released on the market at retail prices / total amount of tobacco, tobacco products released into circulation in the RS in the previous six months |

*Source: authors based on the data of the Law on Excise*

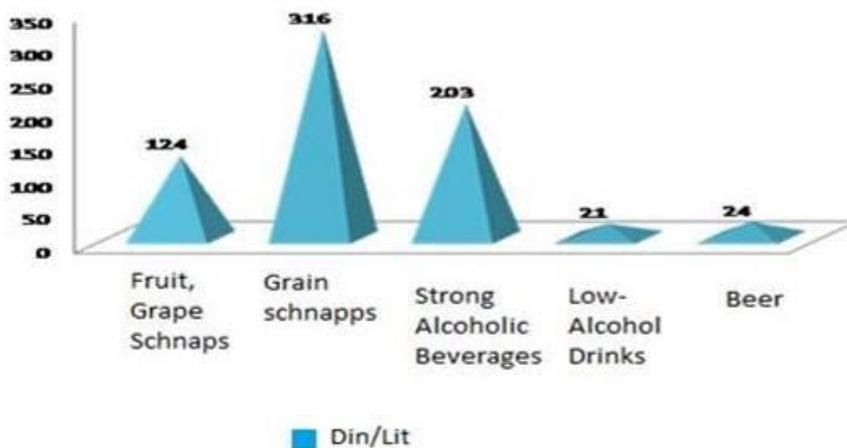
Excise tax on fire safe tobacco is paid per kilogram of tobacco mixture, in the amount of 40% of the minimum excise tax on 1,000 cigarettes which is established

for the category of the weighted average retail selling price of cigarettes. Beverages which are, depending on the raw materials used for production and content of ethanol, placed on the market as such kind of drinks in accordance with the regulations on quality and other requirements for alcoholic beverage are considered alcoholic beverages.

Table 4: Types of alcoholic beverages under the Law on Excise Tax

| Alcoholic beverage types       | FEATURES  |
|--------------------------------|---|
| <b>Strong alcoholic drinks</b> | By regulations in the field of strong alcoholic beverages   |
| <b>Low alcoholic drinks</b>    | Containing more than 1.2% alcohol by volume, a maximum of 15% by volume of alcohol; produced from fruit juices or non-alcoholic beverages with the addition of refined ethyl alcohol; alcoholic beverages, herbal extracts, alcoholic beverages obtained by fermentation) |
| <b>Beer</b>                    | All types except non-alcoholic beer (up to 0.5% alcohol)  |

Source: authors based on the data of the Law on Excise



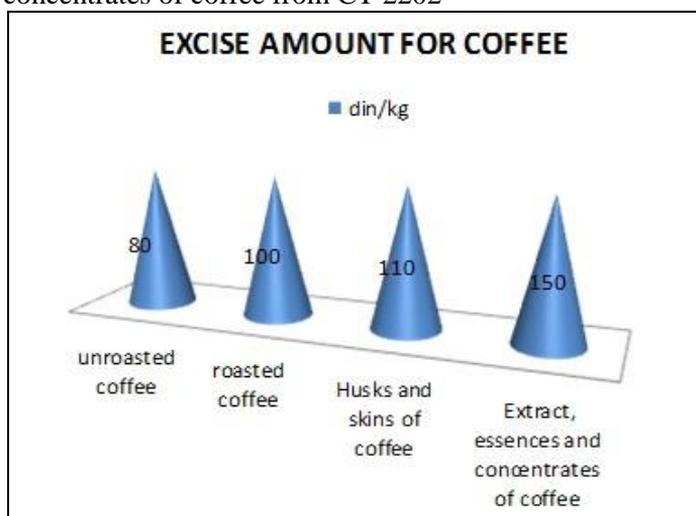
Graph 2: The amount of excise duty to be paid per liter on alcoholic beverages

Source: authors based on the data of the Law on Excise

Coffee, according to the law on excise duties, shall be: (Law on Excise)

1. unroasted coffee from tariff nomenclature CT: 0901 11 00 00 and 0901 12 00 00;
2. roasted coffee from tariff nomenclature CT code: 0901 21 00 00 and 0901 22 00 00;

3. husks and skins of coffee from tariff nomenclature CT 0901 90 10 00;
4. extracts, essence and concentrates of coffee from tariff nomenclature CT 2101 11 00 00;
5. coffee substitutes containing coffee under tariff nomenclature CT 0901 90 90 00;
6. The mixture of extracts, essence and concentrates of coffee with roasted chicory and other roasted coffee substitutes and extracts, essence and concentrates of these products from the tariff nomenclature CT code: 2101 11 00 00 2101 30 11 00 2101 30 19 00 2101 30 91 00 and 2101 30 90 00;
7. Products based on extracts, essences or concentrates of coffee or coffee-based from nomenclature of the tariff codes CT: 2101 12 92 00 and 2101 12 98 00 and products containing coffee extracts, essences and concentrates of coffee from tariff nomenclature CT 1806 90 70 00;
8. drinks and non-alcoholic beverages containing coffee extracts, essences and concentrates of coffee from CT 2202



*Graph 3: The amount of excise tax on coffee*  
 Source: authors based on the data of the Law on Excise

Liquid filling for electronic cigarettes are those products which, when using electronic cigarettes as intended, generate steam for inhalation, as well as the liquid filling of electronic cigarettes contained in other products. (Law on Excise) Excise tax for the liquid filling in electronic cigarette is 4.00 din per milliliter.

According to data of the republic authority in charge of statistics, harmonization of dinar amount of excise duty is carried out with annual consumer price index in the calendar year preceding the year in which the adjustment is performed. The basis for the harmonization of dinar amount of excise taxes on petroleum products with annual consumer price index represent previously published and aligned, i.e. reduced or increased excise taxes on mentioned oil derivatives. In the production of, or prior to importation of cigarettes and alcoholic beverages, the manufacturer or importer is obliged to have and excise stamp on

each of these products individually, except beer and cigarettes that are used to test the quality of the product. Control excise stamp doesn't have to be on cigarettes and alcoholic beverages that are imported in order to be sold to diplomatic and consular representatives. Ministry approved the issuance of excise stamps, and it keeps records on the issued control excise stamps. (Law on Excise)

*Table 5: Excise tax payment*

| <b>DEADLINE</b>                                  | <b>PERIOD</b>   |
|--|---|
| <b>Last day of the month – the latest</b>        | the amount of excise tax accounted for the period from the 1st to the 15th day of the month       |
| <b>15<sup>th</sup> of the month – the latest</b> | the amount of excise tax accounted for the period from the 16th to the end of the previous month. |

*Source: authors based on the data of the Law on Excise*

### ***EXCISE DUTIES REVENUE GENERATION IN THE BUDGET OF THE REPUBLIC OF SERBIA IN THE PERIOD FROM 2005 TO 2015***

In 2015 compared to the previous year, the revenues from excise duties were nominally higher by 11%, while there was a real growth of 9.3% in that period. (Public Finance Bulletin, No. 136, December 2015). The following figure shows the basic indicators of excise duties in the observed period in 2014 and compared to 2015.

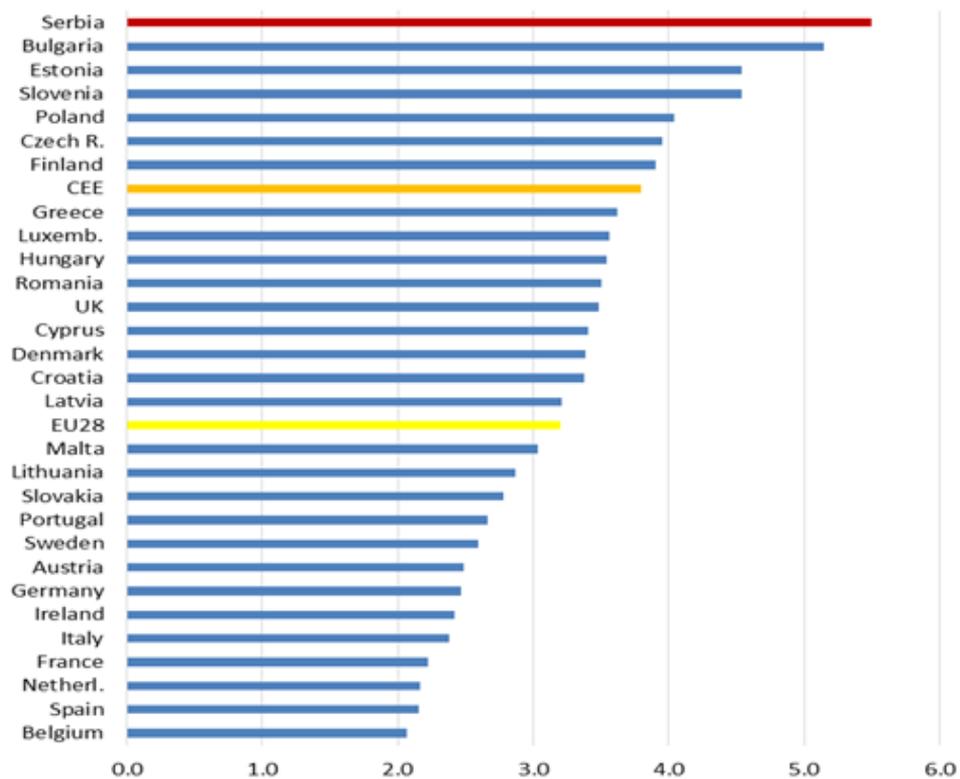
*Table 6: Excise 2014/2015*

|  |
|--|
| Revenues from excise taxes on oil derivatives were nominally higher by 5% but the real   |
| Revenues from excise taxes on tobacco products were higher by 14.7%, with nominal growth of 14.4%, while revenues from excise taxes on alcoholic beverages were higher by 8.8% |
| Revenue from excise rose by 116.9%, due to the excise tax on electricity consumption   |

*Source: Authors based on data from "Public Finance Bulletin" No.136, December, 2015.*

### ***DISTRIBUTED EXCISE DUTIES OF THE BUDGET OF THE REPUBLIC OF SERBIA IN THE PERIOD 2005-2015***

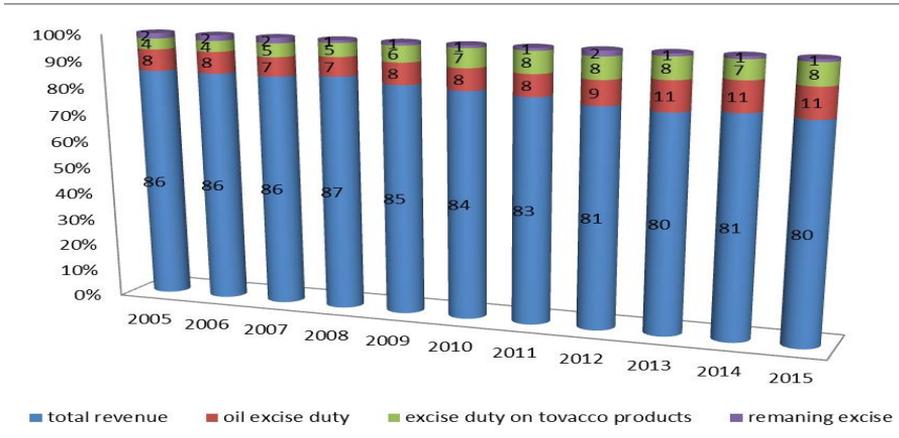
Revenue from excise duties in the EU is 3.2%, Serbia 5.5%, Germany 2.5% of GDP. The reason should be sought in the simplicity of administration, and the fact that this is a form of taxation, which is characterized by simplicity. Also, it is to be noted that the excise tax is a "good" source of income primarily for under-developed countries.



*Graph 4: Excise income (%GDP)*

*Source: [www.ekof.bg.ac.rs/wp-content/uploads/2014/.../17a.-Porezi-na-potrosnju-u-Srbiji.ppt..](http://www.ekof.bg.ac.rs/wp-content/uploads/2014/.../17a.-Porezi-na-potrosnju-u-Srbiji.ppt..) Access 02/06/2016*

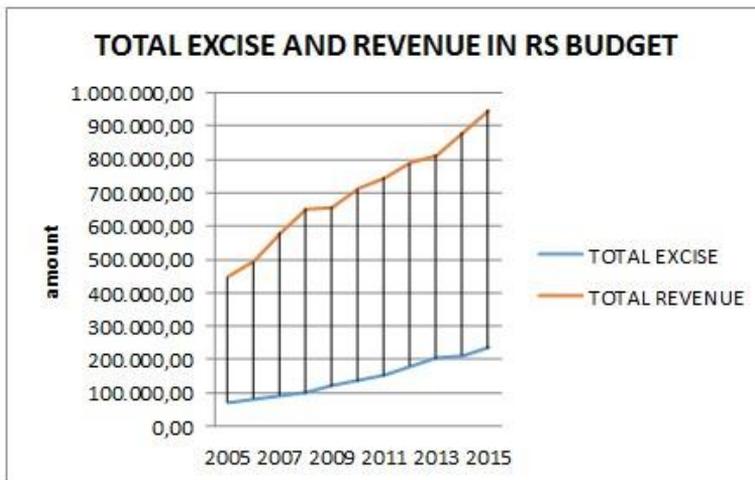
The following graph shows movements of all three types of excise duties in the total income of the Republic of Serbia and it is expressed in percentages for the period from 2005 to 2015.



Graph 5: Excise duty movements in total income of the Republic of Serbia in the period from 2005 to 2015

Source: Authors

By analyzing the share of excise duties (on oil derivatives, tobacco derivatives and other) in total income of the Republic of Serbia, we can notice an increase in excise duties on oil derivatives from 8% (base year) to 11% (in 2015), so an increase of 3%, excise duties on tobacco derivatives had an increase of 4% in 2015 in comparison to 2005, while other excise duties in the observed period vary from 1% to 2%.



Graph 6: Graphic display of total excise and total revenue in the budget of RS for the period 2005-2015

Source: Authors

Share of excise duties in total income of RS budget in the period from 2005 to 2015 showed an increase. Total excise in 2015 amounted to 20% in total income in comparison to base year (2005) when they reached 14%.

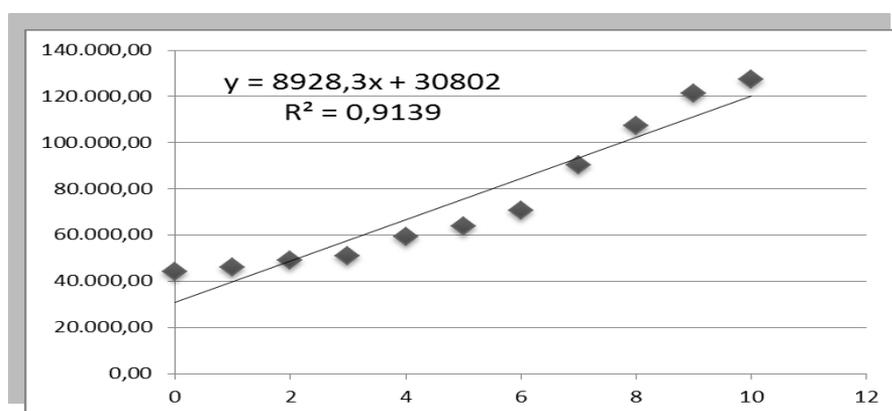
## **STATISTICAL DATA PROCESSING OF THE RESULTS OBTAINED BY EMPIRICAL RESEARCH**

The following table provides a summary view of revenue generation through selected types of excise tax for the period from 2005 to 2015. Based on the data, below will be given time series analysis, linear growth trend for the selected period.

*Table 7: Summary view of revenue generation through a certain type of excise tax in the budget of the RS in the period from 2005 to 2015*

| <b>YEAR</b> | <b>OIL DERIVATIVES</b> | <b>TOBACCO PRODUCTS</b> | <b>OTHER</b> |
|-------------|------------------------|-------------------------|--------------|
| <b>2005</b> | 44.044,80              | 19.044,50               | 8.185,90     |
| <b>2006</b> | 45.915,70              | 26.147,00               | 9.556,60     |
| <b>2007</b> | 49.107,80              | 34.371,90               | 9.732,00     |
| <b>2008</b> | 50.996,80              | 39.339,90               | 10.290,00    |
| <b>2009</b> | 59.382,80              | 50.604,00               | 9.833,30     |
| <b>2010</b> | 63.798,20              | 60.770,60               | 11.020,10    |
| <b>2011</b> | 70.524,60              | 69.185,80               | 12.714,80    |
| <b>2012</b> | 90.233,00              | 76.423,80               | 13.971,00    |
| <b>2013</b> | 107.176,20             | 83.752,30               | 13.832,40    |
| <b>2014</b> | 121.331,50             | 77.569,00               | 13.573,00    |
| <b>2015</b> | 127.371,00             | 90.268,60               | 18.141,10    |

*Source: authors based on [www.mfin.gov.rs](http://www.mfin.gov.rs)*



*Graph 7: Time series and a line of linear trend of the excise tax on petroleum products*

*Source: Authors*

$R^2$  time dependency is the coefficient of determination; the closer it is to number one (1), the stronger the connection

$$Y = bx + a$$

$a = 30802$  intercept on the Y axis is the expected value based on the given information, so the excise tax on oil derivatives should be roughly around 30802

$b = 8928.3$  the slope of the curve is positive and speaks in favor of increasing the excise tax to an average of 8928.3 per year.

The annual rate =  $b / \text{average in} \cdot 100 = 11.83\%$  for the observed period, the excise income on oil derivatives increased for 11.83% per year.

Table 8: Coefficients of excise on oil derivatives.

| Parameter          | Estimate | Standard Error | T-Statistic | P-Value |
|--------------------|----------|----------------|-------------|---------|
| <b>Intercept a</b> | 30802,3  | 5403,86        | 5,70006     | 0,0003  |
| <b>Slope b</b>     | 8928,31  | 913,419        | 9,7746      | 0,0000  |

Source: Authors

The table shows the statistical parameters of a linear trend analysis and assessment of statistical significance. Intercept and the slope of the linear trend were statistically significant compared to the period. Based on the above, it can be said with certainty that the values of excise tax on oil products will grow in the following period.

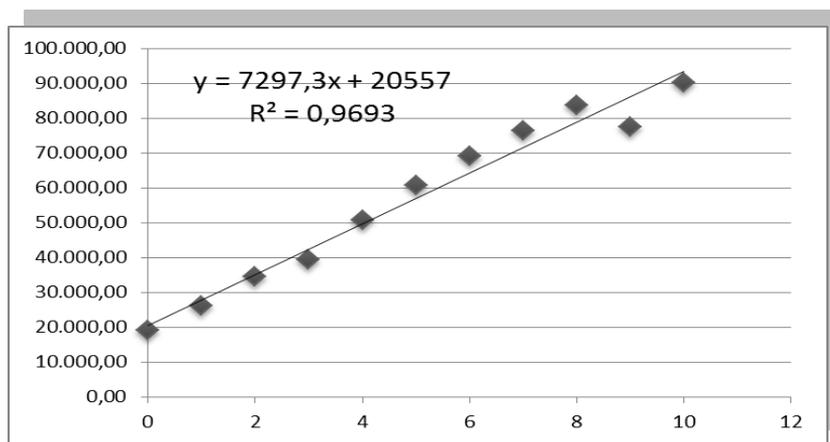
Based on the formula and calculated data, we can see a growth trend of revenue from excise taxes on petroleum products in the budget of the Republic of Serbia in the period from 2016 to 2030.

Table 9: Projection of revenue generation through excise taxes on petroleum products in the RS budget for the period from 2016 to 2030

| YEARS       | Xt             | Y                      |
|-------------|----------------|------------------------|
|             | Modified years | Oil derivatives excise |
| <b>2016</b> | <b>11</b>      | 129013,6873            |
| <b>2017</b> | <b>12</b>      | 137941,9927            |
| <b>2018</b> | <b>13</b>      | 146870,2982            |
| <b>2019</b> | <b>14</b>      | 155798,6036            |
| <b>2020</b> | <b>15</b>      | 164726,9091            |
| <b>2021</b> | <b>16</b>      | 178700,4661            |
| <b>2022</b> | <b>17</b>      | 187046,4288            |
| <b>2023</b> | <b>18</b>      | 193749,7671            |
| <b>2024</b> | <b>19</b>      | 201193,2959            |

|             |           |             |
|-------------|-----------|-------------|
| <b>2025</b> | <b>20</b> | 209701,9497 |
| <b>2026</b> | <b>21</b> | 219522,2524 |
| <b>2027</b> | <b>22</b> | 229520,8861 |
| <b>2028</b> | <b>23</b> | 238517,2262 |
| <b>2029</b> | <b>24</b> | 247413,0786 |
| <b>2030</b> | <b>25</b> | 256168,1912 |

Source: Authors



Graph 8: Time series and a line of linear trend of the excise tax on tobacco products

Source: Authors

$R^2$  time dependency is the coefficient of determination; the closer it is to number one (1), the stronger the connection

$Y = bx + a$   $a = 20557$  intercept on the Y axis is the expected value based on the information, so the excise tax on tobacco products should be about 20557

$b = 7297.3$  the slope of the curve is positive and speaks in favor of increasing the excise tax on tobacco products and to an average of 7297.3 per annum.

The annual rate =  $b / \text{average in} * 100$  12.79% for the observed period, income excise tax on tobacco products increased to 12.79% per annum.

Table 10: Coefficients of excise duty on tobacco products

| Parameter          | Estimate | Standard Error | T-Statistic | P-Value |
|--------------------|----------|----------------|-------------|---------|
| <b>Intercept a</b> | 20557,1  | 2560,04        | 8,02997     | 0,0000  |
| <b>Slope b</b>     | 7297,27  | 432,726        | 16,8635     | 0,0000  |

Source: Authors

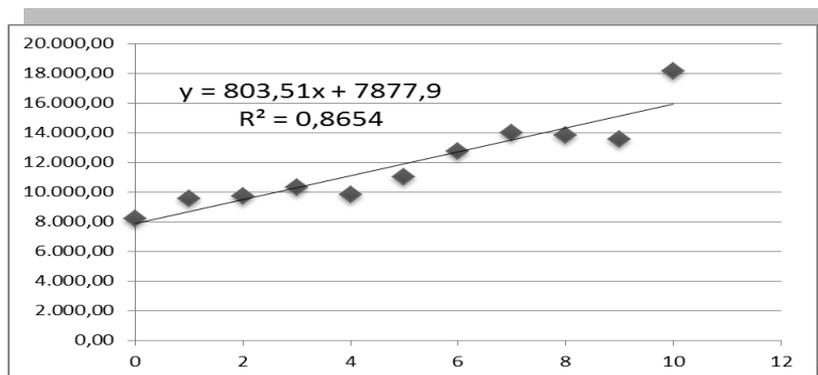
The table shows the statistical parameters of a linear trend analysis and assessment of statistical significance. Intercept and the slope of the linear trend were statistically significant compared to the period. Based on the above it can be said with certainty that the values of the excise tax in the following period on tobacco products will grow.

*Table 11: Projection of revenue generation through excise on tobacco products in the budget of the RS for the period from 2016 to 2030*

| <b>Years</b> | <b>Xt</b>             | <b>Y</b>                      |
|--------------|-----------------------|-------------------------------|
|              | <b>Modified years</b> | <b>Tobacco product excise</b> |
| <b>2016</b>  | 11                    | 100826,9982                   |
| <b>2017</b>  | 12                    | 108124,2645                   |
| <b>2018</b>  | 13                    | 115421,5309                   |
| <b>2019</b>  | 14                    | 122718,7973                   |
| <b>2020</b>  | 15                    | 130016,0636                   |
| <b>2021</b>  | 16                    | 134971,8555                   |
| <b>2022</b>  | 17                    | 141957,7037                   |
| <b>2023</b>  | 18                    | 149425,5663                   |
| <b>2024</b>  | 19                    | 157350,4387                   |
| <b>2025</b>  | 20                    | 165907,3593                   |
| <b>2026</b>  | 21                    | 172099,9362                   |
| <b>2027</b>  | 22                    | 178727,627                    |
| <b>2028</b>  | 23                    | 185797,481                    |
| <b>2029</b>  | 24                    | 192913,8743                   |
| <b>2030</b>  | <b>25</b>             | 200106,1345                   |

*Source: Author*

Based on the given formula and calculated data, we can see a growth trend of revenue generation through excise on tobacco products in the budget of the Republic of Serbia for the period from 2016 to 2030



Graph 9: Time series and a line of linear trend of other excise

Source: Authors

$R^2$  time dependency is the coefficient of determination; the closer it is to number one (1), the stronger the connection

$$Y = bx + a$$

$a = 7877.9$  intercept on the Y axis is the expected value based on the information, so the excise tax on other products should be about 7877.9

$b = 803.51$  the slope of the curve is positive and speaks in favor of increasing the excise tax on tobacco products and to an average of 803.51 per annum.

The annual rate =  $b / \text{average in } *100$  for the observed period, income from the excise tax on other products increased to 6.75% per annum.

Table 12: Coefficients of other excise

| Parameter     | Estimate | Standard Error | T-Statistic | P-Value |
|---------------|----------|----------------|-------------|---------|
| Intercept - a | 7877,91  | 624,787        | 12,609      | 0,000   |
| Slope - b     | 803,512  | 105,608        | 7,60842     | 0,000   |

Source: Authors

The table shows the statistical parameters of a linear trend analysis and assessment of statistical significance. Intercept and the slope of the linear trend were statistically significant compared to the period. Based on the above it can be said with certainty that the values in the coming period will grow.

*Table 13: Projected revenue generation from other excise taxes in the budget of the RS for the period from 2016 to 2030*

| Year        | Xt             | Y            |
|-------------|----------------|--------------|
|             | Modified years | Other excise |
| <b>2016</b> | 11             | 16716,54364  |
| <b>2017</b> | 12             | 17520,05545  |
| <b>2018</b> | 13             | 18323,56727  |
| <b>2019</b> | 14             | 19127,07909  |
| <b>2020</b> | 15             | 19930,59091  |
| <b>2021</b> | 16             | 21012,46479  |
| <b>2022</b> | 17             | 21719,73546  |
| <b>2023</b> | 18             | 22539,72284  |
| <b>2024</b> | 19             | 23463,62915  |
| <b>2025</b> | 20             | 24223,3565   |
| <b>2026</b> | 21             | 24672,69585  |
| <b>2027</b> | 22             | 25784,23552  |
| <b>2028</b> | 23             | 26606,98925  |
| <b>2029</b> | 24             | 27424,24574  |
| <b>2030</b> | 25             | 28232,95646  |

*Source: Authors*

Based on the given formula and calculated data, we can see an upward trend of other excise revenue generation in the budget of the Republic of Serbia in the observed period, i.e. from 2016 to 2030.

## **CONCLUSION**

The research has proved the following: strengthen the confidence of citizens in the implementation of economic policies, which should have a good base in tax and social policy; prevent frequent changes in the law, in order to increase the efficiency and effectiveness of tax administration and equitable taxation of legal entities, implement effective control of taxpayers in order to prevent evasion; increase revenue generation from excise duties in the budget of the Republic of Serbia by increasing the number of taxpayers and consistent application of legal provisions.

The objectives of tax policy should be aligned with the economic policy of the state so that the tax system would result in a higher revenue generation from all types of taxes.

Consistent implementation of the principle of fairness in the collection of taxes would ultimately result in having a reduced gray economy, and taxpayers would be equal in front of the law.

If a country would take a series of preventive measures to raise the level of tax ethics and tax discipline, taxpayers would settle their obligations in time and in accordance with the law, and that would result in having a greater excise revenue generation.

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