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ЕКОНОМСКИ  
ФАКУЛТЕТ  
У СУБОТИЦИ

Универзитет  
у Новом Саду

# **Анали**

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### **у Суботици**

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**Оригинални научни рад**

Original scientific article

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# The use of commercial mediation as alternative dispute resolution tool in the Czech Republic, Hungary and Slovakia

Употреба комерцијалне медијације као алтернативног алата за решавање спорова у Чешкој, Мађарској и Словачкој

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**Abstract:** For a long time, various companies and organizations have used traditional courts or other legal tools to resolve different complex disputes or problems. However, numerous influencing factors often interrupted this formalized problem-solving approach. In the countries of the former Eastern bloc, under the former communist system, the Party often acted as mediator. This, of course, has changed totally since the political system has become democratic. Our study investigates conflict-solving styles, procedures and processes in Central Europe – the Czech Republic, Slovakia and Hungary. The study done in 297 companies in these three countries show that conflicts between individuals, employees and the company are found most often, while problems between the local company and associated parent companies are less frequently found. Regardless of the country, companies have spent at least 10% of their working time dealing with internal conflicts. Some 79% of organizations focus on managing external conflicts for at least 10% of their working time, while around 9% of companies use mediation as a method of resolving conflict. The organizations in the study do not differ from country to country in terms of the use and success of mediation practices.

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\* Corresponding author

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**Keywords:** conflict, conflict-management, mediation, commercial mediation, Czech Republic, Hungary and Slovakia

**JEL classification:** J28, J52

**Сажетак:** Дуго времена су разне компаније и организације користиле традиционалне судове или друге правне алате за решавање различитих сложених спорова или проблема. Међутим, бројни фактори утицаја често су прекидали овај формализовани приступ решавању проблема. У земљама бившег источног блока, под бившим комунистичким системом, партија се често понашала као посредник. То се, наравно, потпуно променило откако је политички систем постао демократски. Наша студија истражује стилове, поступке и процесе решавања сукоба у централној Европи - посебно у Чешкој, Словачкој и Мађарској. 297 компанија које су проучаване у ове три земље показују да се сукоби између појединаца, запослених и предузећа налазе често, док се проблеми између локалне компаније и повезаних матичних компанија ређе налазе. Без обзира на земљу, компаније су провеле најмање 10% свог радног времена бавећи се унутрашњим сукобима. Око 79% организација фокусира се на управљање спољним сукобима током најмање 10% свог радног времена, док око 9% компанија користи медијацију као метод решавања сукоба. Организације у студији се не разликују од земље до земље у погледу употребе и успеха праксе медијације

**Кључне речи:** сукоб, управљање сукобима, посредовање, комерцијално посредовање, Чешка, Мађарска и Словачка

**ЈЕЛ класификација:** J28, J52

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## Introduction

According to the representatives of conflict theory, all human societies are fundamentally characterized by conflicts, which are necessarily a harmful phenomenon and do not promote social development. The main representatives were Plato, Marx and Engels, Weber, Pareto and Lenski (Lovász, 2009; Rössel, 2013). In contrast, there are representatives of the theory of harmony, whose human societies are fundamentally characterized by the cooperation of the members, the conflict is only extraordinary and dysfunctional. Representatives of the theory were Aristotle and Adam Smith.

For a long time, reference to divine providence and existence were the basis for solving problems (Treacy, 1948). Investing in confrontation wastes both time and energy and consumes resources originally meant for something else. Swift action is necessary if a conflict arises, otherwise the situation may lead to a deeper, escalating forms of confrontation (Yusuf & Pretorius, 2017). If the unfavorable situation is prolonged and not managed correctly, the chance of concluding an agreement between the parties involved decreases rapidly (Patterson et al., 2011).

The number of individuals or groups involved in a dispute may vary. When an outside-party is asked for assisted negotiation, it might provide a solution acceptable by all impacted parties (Moore, 2003). Conflict-solving can be much more organizationally effective and cost-efficient compared to neglecting the problem or becoming involved in a long and expensive process of litigation.

This study focuses on the conflict-solving styles and procedures present in Central Europe, and it aims to compare the methods and processes of conflict-management in three post-socialist countries – the Czech Republic, Slovakia and Hungary.

In the introductory part, the paper reviews the peer literature and defines the possible forms of facilitation available to resolve conflicted relationships, in particular focusing on the normal methods of conflict escalation and intervention strategies. This discussion is followed by the presentation of conflict-management procedures in the field of business activities with a special focus on the patterns and tendencies of the three countries investigated.

## **1. Theoretical background**

### **1.1. Organizational conflict**

The term conflict comes from the Latin word *confligo*, which means confront, oppose or counter. By organizational conflicts we mean the encounters that primarily occur at workplaces. These encounters are between individuals or groups and based on real or perceived differences in goals, means, preferences and perspectives (Kelly, 1970; Kathman & Kathman, 1990; Stone et al., 2000). There are several types of conflict in an organization. The nature of conflict is either related to processes, tasks or relationships (Kurtzberg & Mueller, 2005). With regard to conflict management, it is important to discuss the parties in conflict, the escalation of conflict, individual conflict-management strategies, the deepening of conflict and forms of more informal and more institutionalized mediation.

### **1.2. The parties in conflict**

According to Griffin (2010, p. 597) “conflicts in an organization are either between or within groups”. Conflicts within a group usually develop in an organizational unit between individuals, whereas conflicts between groups generally appear among horizontal (e.g. conflict between research & development team and engineers) and vertical (e.g. middle and senior management) units in an organizational structure (Katz & Kahn, 1966). Mastenbroek (1991) establishes four types of conflict relationship between groups:

- In the case of instrumental relationships, organizational units are bound by a certain structural and technical interdependence. This mutual dependence results in a tight cooperation in task distribution and coordination. This type of relationship facilitates logistics or formal decision-making processes. Conflicts usually emerge from different perceptions of short-term, operative goals and planning horizons.
- Socio-emotional relationships feature informal interpersonal relations. Conflicts are based on sympathy and antipathy.
- Power relations within an organization are connected to formal and informal positions, which have interest enforcement and manipulation potential. Conflicts are about the acquisition and utilization of power.

- Negotiation relations develop between organizational units in connection with the division of limited resources. Fundamentally, the allocation of resources serves as the basis of conflict.

### **1.3. Escalation of conflict**

Glasl (1999) describes nine stages of conflict escalation. Methods of intervention change as conflicts deepen. He points out that, after a certain stage, conflict resolution is only possible by involving third party mediators. According to Glasl (1999), escalation occurs in the following ways:

1. **Hardening.** Due to different positions (emotions, interests etc.), tension arises among the parties.
2. **Debates.** Preliminary discussions lead to verbal confrontation, which means open communication, debate and polemics between parties. At this stage, the parties can agree on a constructive solution.
3. **Without words.** As parties fail to resolve their conflicts in the previous stages, they usually choose to withdraw from direct interaction, maintain distance or cut/minimize communication with the other party.
4. **Coalition.** Conflicting parties attempt to acquire allies and get them involved in the situation. These third party allies provide support; empowering the position of the supported party, this in turn leads to increased opposition and negative attitudes.
5. **Loss of face.** At this stage, parties initiate a psychological assault towards each other. Opposing parties try to draw the attention of their allies to the other party's false position (values, interest etc.). The goal of this behavior is to destroy the other party's face/authority in public.
6. **Strategies of threats.** The level of tension increases between the parties and, as a result, they want to force a solution. Hence, they declare an ultimatum against each other. These threats further deepen the conflict; however, it is still not a psychological stage.
7. **Limited destructive blows.** At stage seven disapproval increases further. Trust fully turns into mistrust. Both parties presuppose bad intentions on the part of the "other" so that violent measures can be justified. Forms of verbal (e.g. gossip) and physical (e.g. slap) aggression appear.
8. **Fragmentation of the enemy - Aggression intensifies.** The goal is to destroy the other party and its subsystems (allies, coalitions). The purpose of aggression is to force the other party to step out of the situation (e.g. quit the job, move from the neighborhood, divorce, physical destruction...etc.).
9. **Together into the abyss.** At the last stage, aggression between parties escalates to the point that they further increase their efforts to destroy the other at all costs. In extreme cases, risk of self-destruction becomes apparent.

The first three stages can result in a win-win situation. It is possible to achieve a joint solution at this stage. Consequently, resolution of conflicts can bring satisfaction to both parties. In this case, conflict is constructive.

Stages four to six are called win-lose stages. A solution acceptable to both parties can only be obtained by using third party neutral mediators. A solution enforced by any of the parties means victory for one party and defeat for the other. These types of conflict are destructive.

Stages seven to nine are called lose-lose stages. It is difficult for parties to remain objective when they perceive that others disagree with or even disapprove of their point of view (Jehn, 1997). A solution that is acceptable to both parties can no longer be obtained by using third party, neutral mediators. Damage has been done and the only sensible goal is to mitigate any further losses. The only solution is through the involvement of outside authorities, such as court of law or the military. These types of conflict are clearly destructive.

Glasl's escalation model is an important diagnostic tool to understand conflict and sensitize people. Yasmi et al. (2006: 541) outline Glasl's model as "a detailed description of the levels of escalation". If we understand the inner logic of conflict and the situational pressure on parties, we can consciously make efforts to oppose these self-driven escalation mechanisms (Jordan, 2000).

#### **1.4 Conflict management strategies**

The first conflict-management strategy model was described by Blake and Mouton (1964) in the mid 1960s. They proposed five categories of conflict management styles: problem-solving, accommodation, forcing, avoidance and competing. The concept of these authors is closely in line with their widely publicized leadership style grid model. In the seventies, Thomas and Kilmann (2008) reinterpreted interpersonal conflict management strategies in the organization. To date, the best known categorization of conflict management strategies is their five-type model: competition, collaboration, accommodation, avoidance and compromise. The concept was further developed by Pruitt (1983) in the eighties. In his model, four different types of strategy were identified – based on individual or common interests. According to Pruitt, the parties to a conflict consider the self-confidence and cooperation of themselves and the other party when choosing a conflict management strategy. The parties to the negotiation choose between the following four strategies (one or more: yielding (low assertiveness / high cooperativeness), problem solving (high assertiveness / high inaction (low assertiveness / low cooperativeness) and contending (high assertiveness / low cooperativeness).

Kuhn and Poole (2000) later suggested a two-type model of conflict: distributive and integrative. According to the distributive model, only one side can be the winner; the other loses. In the integrative model, both sides can win. This model lays great emphasis on compromise. DeChurch and Marks (2001) analyzed several models of conflict-management and concluded that all strategies can be described by two dimensions: one is activity, and

the other is collaboration. Rahim (2002) expanded this theory by claiming that one dimension is about expressing own expectations and demands, whilst the other is taking the other party's expectations into consideration. In his model, Rahim introduced five strategies: integrating, obliging, dominating, avoiding, and compromising. Other authors assert that EI (Emotional Intelligence) helps the implementation of the constructive conflict management approach. This was particularly the case with subordinates (Akerjordet and Severinsson, 2007).

### 1.5. Mediation as alternative conflict resolution tool

Mediation is a dynamic, structured, interactive process, in which a neutral third party supports the opposing parties in resolving their conflict with the help of special communication and negotiation techniques (Mareschal, 1998). The historical root of mediation dates back to the 20th century United States, when the government issued regulations in order to settle conflicts between employers and employees. As part of the legislative process, in 1947 the Taft-Hartley Act was passed leading to the establishment of the Federal Mediation and Conciliation Service (Strasser & Randolph, 2008). Mediation comprises three distinctive parts (Riskin, 1994).

- 1) It is based on consensus, so that only the opposing parties can decide whether to reach an agreement or not. A mediator never forces anything on the parties.
- 2) It is private and confidential, so that privacy and being free from prejudice is mandatory. Nothing discussed within the framework of mediation can be given any kind of publicity.
- 3) Mediation is not based on rights and obligations, but rather on demands and interests. Mediation does not focus on past events and the reasons behind failures, but rather on solutions and the future.

The scientific relevance and disciplinary perspectives of mediation is wide ranging. Scholars from different fields are interested in conflict resolution and in its practical benefit. Table 1 shows the summary of disciplines that study mediation, the typical application contexts and main issues dealing based on Morasso (2011).

Table 1: Fields of mediation

Fields of mediation	Typical application contexts	Main issues
Juridical studies	Family mediation, penal mediation, commercial and business mediation	Alternativeness, advantages of mediation in comparison to other form of dispute resolution, educational background of mediators
(Social) psychology	Family mediation, community mediation, (school mediation)	Conflict, restoring relationships
Economics and finance	Commercial and business mediation, financial mediation	Economic advantages for individuals, corporations and other institutions, conflict in corporations, mergers, etc., rationality of economics agent in conflictual situations
Sociology	Community mediation, social dispute mediation	Restorative justice, social effects of mediation



Political sciences	International mediation, political mediation, social dispute mediation	Conflict, negotiation, role and personality of third parties in international processes, power issues
Argumentation	Family mediation (divorce mediation), community mediation, business mediation.	Quality of argumentation and quality of mediation. Mediator's communicative instrumentation for fulfilling their task

*Source: the authors' own research based on Morasso (2011)*

## 1.6. Commercial/business mediation

Mediation offers parties a chance to gain deeper understanding of their dispute and limit the cost of extended legal action. Today wide spectrum of organizations need mediation services. Empirical research on commercial mediation is still rare. Filler (2012) show the diversity of styles, approaches and forms of mediation developed in Europe. The goals of commercial mediation are clear-cut: minimizing costs and losses in an relevant way. A mediator concentrates on resolving the conflicts between economic parties and on working towards the development of a mutually acceptable resolution. Commercial mediation can be effectively used in a variety of ways: to solve legal and compensation disputes, to settle agreements between creditors and debtors in liquidation procedures, resolving disputes between employers and employees, in concluding disputes related to task management, human resource problems, workplace bullying and abuse, as well as ending disputes related to copyright and intellectual property.

## 2. Country-specific issues of conflict management and commercial mediation

### 2.1. Commercial conflict management in the Czech Republic

Mediation found its way into the Czech Republic shortly after the collapse of socialism in 1989. It was introduced by American professionals from the non-governmental organization Partners for Democratic Change. Local professionals realized the benefits of mediation and established the Centre of Agreement and Partners in 1991 (Holá, 2011). From 1993 onwards, mediation was introduced for municipalities in the form of Conciliation Boards to help in solving conflicts within local communities. The members of the Board worked on a voluntary basis, free of charge in their free time. The first Conciliation Board was established in Prague and today it is still present in major cities such as Ostrava, Pardubice, and Vsetín (Holá, 2015). The Association of Mediators in the Czech Republic was established in 2000 and the Chamber of Mediators and Facilitators in 2012.

Mediators have been very active in promoting mediation to both law professionals and the general public by publicizing conferences, lectures, speeches, articles and media interviews. They do it both individually and in cooperation within several professional organizations. Conferences, training and other forms of education are also arranged by these organizations and universities for professional mediators to help them in their growth.

There are several non-governmental organizations established by mediators such as Association of Mediators of the Czech Republic in 2000 and Chamber of Mediators and Facilitators in the Czech Republic in 2014. Competition “The Mediator of the Year” started in 2019 by Centre for Dispute Settlement (Centrum pro řešení sporů s. r. o) and media and educational group EPRAVO.cz. under the auspices of the Minister of Justice of the Czech Republic. There are categories: family mediator, business mediator, pro bono mediator, legal person supporting mediation, counsel mediator, legal office supporting mediation and mediator between victims and offenders. Mediation is also an academic subject within the curriculum in law faculties, e.g. Law Faculty of Charles University in Prague started teaching mediation in 2014.

The Probation and Mediation Act. No. 257/2000 Coll. was passed to serve the needs of the criminal justice. The Mediation Act No. 202/2012 Coll. was passed in 2012. It regulates all aspects of civil mediation – the process of mediation, the responsibilities of mediators, confidentiality and oversight, the process of becoming a registered mediator, the examination for registered mediators and the breach of responsibilities too. There are currently 240 registered mediators according to the official list published by the Ministry of Justice of the Czech Republic and dozens more who are not registered. Some are working on an individual basis, others are located in mediation centers. Some mediators practice mediation in all areas of law, whilst others specialize in certain areas – namely business law, family law and trade union settings. To become a registered mediator, one has to pass written and oral exams administered by the state authority.

The Ministry of Industry and Trade is a very active promoter of mediation. It organized the Out-of-Court consumer mediation and arbitration pilot project for two consecutive years – 2008 and 2009. Its main goals were to help resolving disputes, minimize the time spent on consumer confrontation, maximize mutual agreements, motivate voluntarism, strive for impartiality during proceedings, ease accessibility and lower financial demands on the contending parties involved. Completion of conflict resolution was set to 60 days (ideal time) or 90 days (maximum time). Mediation was free of charge for participants (entrepreneurs and consumers); mediators and attorneys were paid by the Ministry. The Ministry of Justice, the Ministry of Finance, the Chamber of Commerce of the Czech Republic, the Court of Arbitration of the Chamber of Commerce and Agriculture of the Czech Republic, the Association of Mediators and Consumer Organizations all cooperated in these projects. In total, 22 contact places were included in the project, whilst 28 mediators and 59 arbitrators, who met the qualification criteria, were listed on the online pages of the Ministry of Industry and Trade.

From 1 April to 31 December 2008, there were 1077 requests for dispute resolutions from the three largest cities of the country – Prague, Ostrava and Brno. Some 862 cases were successfully concluded. Of these, 320 cases were successfully resolved simply by providing information and recommendations on the spot. In 49 cases mediation, and, in one case only, arbitration was carried out. In the remaining 492 cases one of the parties did not agree with the proposal for an out-of-court solution or did not react within the designated period. Typical subjects of dispute were complaints about various types of product such as

laptops, furniture, cameras etc. This project shows that if the government promotes mediation, positive results will appear.

## **2.2. Commercial conflict management in the Slovak Republic**

Mediation in Slovakia is described and regulated in Act No. 420/2004 Coll. on mediation and amending certain laws. Based on Article 1 (2) of this law, mediation is an extra-judicial action in which the parties settle a dispute arising from or concerning their contract or other legal relationship through a mediator. Referring to Article 1 (3) of this Act, a mediator may be any natural person registered in the Register of Mediators at which the persons involved in mediation agree, and the mediator concludes mediation agreements with the persons involved in mediation in accordance with Article 1 (14) of the Slovak Mediation Act 2004. In 2014 a team of experienced authors processed a Commentary on the Act No. 420/2004 Coll. on Mediation. The commentary (Budjač et al., 2014) addresses the mediation process in detail, the legal nature of mediation agreement, the eligibility of mediation and professional mediator training, the control of mediation activity and the specifics of mediation in consumer disputes.

As part of the long-term programs of the civic association PDCS (Partners for Democratic Change in Slovakia), Conciliation Boards were established in Slovakia in 2015. In addition to the center established in Bratislava, a mediation center in Banská Bystrica and the Conciliation Board in Prešov and Levice were also established. The Conciliation Boards in Nové Zámky, Rimavská Sobota and Kežmarok had been PDCS branches for four years (PDCS, 2019). These Conciliation Boards are voluntary associations of people from different profession fields, whose task is to help citizens or groups resolve their disputes and conflicts through mediation.

The scientific literature addressing the issue of mediation also exists in Slovakia. The practical legal guide “Mediation” (Swanová et al., 2016) focuses in particular on the practical aspects of mediation and changes to the Mediation Act implemented in 2016. Beyond the legal analysis and interpretation, it provides a comprehensive view of alternative conflict resolution through the mediation method. The brochure, “Possibilities of Mediation in Self-Government or from a Mayor to Mediator” (Kutlík, 2008) introduced the basic mediation skills to municipalities, focusing on avoiding disputes and improving human relationships.

The Office of the Association of Towns and Communities of Slovakia distributed this brochure to all towns and villages. The aim was to teach the representatives of municipalities – mayors, councilors and employees –how to resolve disputes through mediation. At the same time, they can also learn how to avoid conflict arising in villages and towns. The publications “Mediation in Healthcare” (Kutlík, 2017) and “School and Peer Mediation” (Bielešzová, 2017) were prepared for specific groups, addressing the patient – healthcare worker, healthcare worker– healthcare worker and pedagogical and professional school staff-pupil-student-parent relationships. The absence of interaction or different attitudes to cultural or religious values may disturbed interpersonal relationships at the workplace and can generate a wide range of conflicts. Publications bring alternative

ways of resolving a particular problem through implementing the mediation process. “Applying Mediation in Civil Law” (Mrázek, 2012) is a publication designed especially for university students.

There is a low intensity of mediation research in Slovakia, and so every survey initiative is valuable. Pružinská (2007) asked mediators registered on the List of Mediators published on the website of the Ministry of Justice of the Slovak Republic to complete a questionnaire. The total number of mediators at that time was 145, with 5% of the sample examined consisting of lawyers and 45% of non-lawyers. During the 2.5 years following the implementation of the Act on Mediation, the number of mediated disputes increased by 128 for the sample of mediators. These mediators helped the parties to reach an agreement in half of the cases. The mediation agreement ended civil, family, commercial and labor disputes. Recent research by the Theological Faculty of the University of Prešov and Mediation Centre (2016) focused on how informed the respondents were about mediation as a technique to resolve conflicts and disputes. There were 61 respondents involved in the survey and their ages are shown on a scale from 20 to 69. Most of them, 80% of the respondents, had experienced civil litigation in the past; whereas a minority specified family, commercial and labor disputes. Whilst 69% know what the term mediation means, half of the respondents are aware of where to contact a mediator if needed. The respondents reported the benefits of mediation as being ‘financially advantageous’, ‘faster and easier’.

Many young people consider mediation as an interesting area for their own professional activity in Slovakia, and we have statements and interviews of mediators on TV, radio and on the Internet. Offices and their staff offer expanding services in family, neighborhood litigation, labor litigation, property, civil and commercial litigation. Mediators are available, and, as they operate in regional cities, it is quite easy to contact and meet them. The initial consultation is usually free of charge and is an initial assessment of the specific case – of the dispute. Accepting the case, its comprehensive study and solution is charged. The mediator is either called by both sides of the dispute at the same time or is called by one of the parties and he contacts the other after that. The prerequisite is the consent of all parties to the dispute to start the mediation process. The usual outcome of this is a mediation agreement, which contains the consensus of all those involved. Mediation is not recommended in cases involving fundamental human rights and constitutional rights. The average mediation lasts from one day, but, depending on the complexity of the dispute and the number of parties involved, may extend to several weeks.

### **2.3. Commercial conflict management in Hungary**

In Hungary, the National Mediation Association was established in 2000. The association is an NGO, and, according to its statutes, its aim is to popularize mediation as a means of conflict-management in Hungary. A further aim is to organize the work of professionals in the field of mediation education and practice. The main activity of the association is to support, organize, and coordinate the work of mediators, furthermore to represent and protect the interest of these professionals and use these activities to promote, introduce, teach and create research related to processes of mediation. The association

constantly seeks to adapt international research findings, organize conferences, training and cooperate with national and international organizations .

Mediation activity has been under the supervision of national legislation since 2002. The 2002 LV. Mediation Act defines the term mediation, and, according to the Act, mediation is a unique conflict-management, dispute settling procedure that aims to settle a dispute between the opposing parties by involving a neutral third party (mediator) in order to solve the disputes with a written consensus. The role of the mediator is to be unbiased and contribute to a dispute settlement agreement to the best of their knowledge (Lux, 2014).

A government decree (Act No. 185/2009. Coll.) amended the 2002 Mediation Act (IX. 10.), which regulates how one can use an official mediator. The regulation defines the conditions under which one can become an official mediator, and how the person can be registered as such.

The training requirements and participation therein are determined in the 63(XII. 17.)IRM regulation. The Bill regulates in detail the requirements to be fulfilled to become a mediator and how to acquire the necessary credit points. According to this, mediators need to complete a 60-hour theoretical training program and, during their practical training, they also need to present at least one mediation case study which was completed.

The 2006 CXXIII. Bill of Mediation Practice in Criminal Cases, which became law on 1 January 2007, defines how and when to use mediation in criminal cases. This Act makes reparations possible as a component of a mediation agreement.

The 2016 CXXX. Code of Civil Procedure, effective on 1 January 2018, enables the use of mediation in corporate disputes. After the initiation of the lawsuit, it is possible to have a mediator involved, for example, when a company general meeting wants to exclude a member, or when conflicts arise between family members in a family business, or between employer and employees in an organization.

Research in the field of mediation gathered momentum after Hungary's democratic transformation. The National Scientific Bibliography Database, also known as MTMT in Hungarian, contains 318 articles with the keyword "mediation", 479 publications with the word "mediator", and 63 use the term "alternative dispute settlement". The first paper in this research field dates back to 1973, but the next did not appear until 1989. The topic became more popular after the democratic transformation, although it is still lacking research material.

## **2.4. Country specific frameworks of commercial conflict management**

In countries in the developed world, such as the United States, the United Kingdom, or even Belgium, various forms of mediation have been used in labor disputes for nearly 70 years (Potocnik et al, 2019). Today, four different models have emerged in the European Union. One model is the completely voluntary model. The other is a voluntary model that is helped with some financial support, while for the third model, it is initially mandatory to

use a mediator. And finally, there is the model where mediation is mandatory before any legal act (Elgoibar et al., 2019). In addition to the relatively weak and declining trade union activity (Morley et al, 2015; Cranet, 2017), the first and second models are the now common in Eastern Europe including the analysed three countries.

Table 2: The national approaches to mediation in Czech Republic, Hungary and Slovakia

Characteristics of mediation	Czech Republic	Hungary	Slovakia
What disagreements (formal vs. less) does mediation cover? Formal disagreements covered only vs. Less formal disagreements covered.	<ul style="list-style-type: none"> <li>Disputes that cover all legal issues except criminal law, which is regulated and mediated separately.</li> </ul>	<ul style="list-style-type: none"> <li>Family, divorce, relationship, commercial/business, organizational, other dispute resolution (educational, labor, health, office, minority etc.)</li> <li>Both formal and less formal disagreements covered.</li> </ul>	<ul style="list-style-type: none"> <li>Family litigation, neighbourhood litigation, labor litigation, property, civil and commercial litigation,</li> <li>Mediation is not recommended in cases involving fundamental human rights and constitutional rights</li> </ul>
Mediation is general vs. contextually specific (by industry or institution) (as may be the case in Slovakia)	<ul style="list-style-type: none"> <li>Contextually specific by several areas,</li> </ul>	<ul style="list-style-type: none"> <li>Contextually specific by several areas</li> </ul>	<ul style="list-style-type: none"> <li>Contextually specific by several areas</li> </ul>
Mediation is nationally standardized vs. regionalized	<ul style="list-style-type: none"> <li>Regulated by Act No.202/2012 Coll. – Mediation Code</li> </ul>	<ul style="list-style-type: none"> <li>Regulation: 2002 LV. Mediation Act; Act No. 185/2009. Coll.; 63(XII. 17.) IRM; 2006 CXXIII. Bill of Mediation Practice in Criminal Cases; 2016 CXXX. Code of Civil Procedure</li> <li>Mediation Centers are established in each county by national mediation office (<a href="https://mediatoriroda.hu/">https://mediatoriroda.hu/</a>)</li> </ul>	<ul style="list-style-type: none"> <li>Regulated in Act No. 420/2004 Coll. on mediation and amending certain laws,</li> <li>Mediation Centers are established in district towns on regional level</li> </ul>
Mediation is by government financed vs. paid for by fees from the parties.	<ul style="list-style-type: none"> <li>If ordered by the court, it is paid by the state.</li> <li>If not ordered by the court, then the parties hiring a mediator pay mediation fee equally to the mediator (unless agreed otherwise).</li> </ul>	<ul style="list-style-type: none"> <li>Some providers offer a free mediation service, but there is none from the state.</li> <li>Otherwise, most of the mediation service is paid</li> </ul>	<ul style="list-style-type: none"> <li>The initial consultation is usually free of charge,</li> <li>Accepting the case, its comprehensive study and solution is charged,</li> </ul>

			<ul style="list-style-type: none"> <li>The mediator is entitled to be paid for the performance of mediation</li> </ul>
<p>Mediators regulated and registered, with a certification exam required vs. Volunteers?</p>	<ul style="list-style-type: none"> <li>The mediator can be any natural person registered in the Register of Registered Mediators, who:                     <ol style="list-style-type: none"> <li>is fully competent to perform legal acts,</li> <li>has no criminal record,</li> <li>obtained a master's degree from university,</li> <li>successfully passed state mediation exam,</li> <li>was not barred from the Register of Registered Mediators in past 5 years according to Act No.202/2012 Coll. § 22,</li> <li>paid administrative fee to Ministry of Justice.</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>Based on Act LV of 2002 the Ministry of Justice shall maintain a register of mediators, also containing the names of legal persons and unincorporated business associations employing mediators. The training requirements and participation therein are determined in the 63(XII. 17.) IRM regulation. Mediators need to complete a 60-hour theoretical training program and, during their practical training, they also need to present at least one mediation case study which was completed.</li> </ul>	<ul style="list-style-type: none"> <li>The mediator can be any natural person registered in the Register of Mediators, who:                     <ol style="list-style-type: none"> <li>is fully competent to perform legal acts,</li> <li>obtained a second university degree,</li> <li>is innocent,</li> <li>has a certificate of successful completion of the mediator's professional training and completion of the mediator's professional examination</li> </ol> </li> </ul>

Source: the authors' own research

### 3. Methodology

#### 3.1. Questionnaire and hypotheses

Commercial conflict management research was conducted in three countries: the Czech Republic, Hungary and Slovakia in 2018. The method of sample collection for the given survey was as follows. The respondents completed the questionnaire voluntarily; the questionnaire typically consisted of closed questions, generally based on nominal variables' the questions could be divided into several groups. The structure of the questionnaire is summarized in the following table 3.

Table 3: Structure of the questionnaire

Organizational Characteristics	Organizational Conflict	Mediation
<ul style="list-style-type: none"> <li>Company size</li> <li>Main activities (sector) of the organization</li> <li>Company ownership</li> <li>Characteristics of employees</li> </ul>	<ul style="list-style-type: none"> <li>Internal processes for managing conflicts</li> <li>Types of conflict</li> <li>Conflict-management methods</li> </ul>	<ul style="list-style-type: none"> <li>Use of mediation</li> <li>Effectiveness of mediation</li> <li>Willingness to introduce mediation</li> </ul>

Source: the authors' own research

Among other things, the authors analysed the validity of the following hypotheses:

Hypothesis 1: *The organizations in the study differ from country to country in the use and success of mediation practices.*

Hypothesis 2: *The nature of conflict and the success of mediation are influenced by the size of the organization.*

### **3.2. Sample characteristics**

Some 297 companies completed the questionnaire: 101 from the Czech Republic, 108 from Hungary and 88 from Slovakia. Based on organizational size, 42% of the companies surveyed had fewer than 51 employees; 35% had more than 51 but fewer than 500; some 20% had more. In terms of country, 26% of the Czech companies employed fewer than 51 people, whilst 36% employed between 100 and 500.

The largest proportion of Hungarian companies (46%) employ fewer than 51 people, and in the Slovak sample 53% were also small companies (with 50 or fewer employees). In terms of activity, the companies were most active in the following sectors: 13% in sales and trading, 13% in manufacturing, 12% in services, 12% in electrical energy, and 6% in transport and logistics.

According to a country-by-country analysis, Czech companies accounted for 30% of the manufacturing and 18% of the energy industry. Hungarian companies provided services in 20% and sales and trading in 10%. The Slovak sample was also dominated by organizations in the sales and trading sector (13%), and by manufacturing companies (13%).

In terms of ownership, 52% of Czech companies were Czech-owned, 74% of Hungarian companies were Hungarian-owned, and 72% of Slovakian companies were Slovak-owned. In this respect, the firms operating in the three countries were significantly different from each other (Chi-square test: 13.146 df: 2, sign: 001  $p < .05$ ). In the case of Czech companies, foreign owners were mostly American, French and German (17% -17% -17%). The Hungarian companies had American (35%) and Slovakian organizations, German and American owners (36% -12%). Some 35% of the companies surveyed had foreign workers. This is typical of 60% of Czech organizations, 24% of Hungarians and 22% of Slovak companies employing non-domestic workers. Organizations differed significantly across countries on this issue (Chi-square: 40.493 df: 2, sign: 000  $p < .05$ ).

Looking at the proportions of women and men, in 44% of companies, the proportions are nearly equal - over 60% were men in 24% of organizations, and far more women, up to 60%, were employed by 13% companies. Czech companies have



the highest proportion of women to men (38%), similarly to Hungarian organizations (51%) and Slovak companies (44%).

### 3.3. Analysis

During the research, the responding organizations were asked to conduct a regular employee engagement survey of the organizations. Some 36% answered yes and 64% refused. Examined by country, the survey was conducted on a regular basis, while 64% of Czech organizations, 29% of Hungarian organizations and 14% of Slovak companies carried out such surveys on a regular basis. The Chi-square study shows a significant difference by country: Chi-square: 55.592 df: 2, sign: 000 p<.05. The study also found that 65% of companies with foreign employees had regular employee satisfaction surveys, compared with only 21% of those who did not. The Chi-square test confirmed the significant difference (Chi-square: 54.784 df: 2, Significant: 000 p<.05). Some 37% of organizations develop internal processes for managing conflict, whilst 67% do not. About 30% of Czech companies do this, but 39% of Hungarians and 43% of Slovaks. The research also asked what types of conflict can be expected within the organizations. Table 4 summarizes the frequency of possible conflict types:

Table 4: Types of conflict

No	Types of conflict	%
1	Between individuals	86.3
2	Between company and employees	25.4
3	Between teams	16.6
4	Between Company and B2B Clients	16.1
5	Between company and suppliers	9.7
6	Between company and state	3.7
7	Between a company and a foreign parent company	1.7

Source: the authors' own research

The data in Table 5 clearly show that conflicts between individuals and the company and employees are the most frequent, while problems between the company and the parent company are least frequently reported. These types of conflict have also been examined on a country-by-country basis. The results are shown in Table 5.

Table 5: Types of conflicts by countries (%)

Types of conflict	Czech Republic	Hungary	Slovakia
Between individuals	85.1	85.2	90.9
Between teams	14	25.9	8
Between company and employees	31	20.4	26.1
Between company and suppliers	13	9.3	6.8
Between Company and B2B Clients	25.7	7.4	15.9
Between a company and a foreign parent company	3	0.9	1.1
Between company and state	5	3.7	2.3

Source: the authors' own research

Based on the data in Table 4, the most frequent conflicts in the Czech Republic are between individuals, between the company and employees, and between the company and B2B clients. In the case of the Czech Republic, an intuitive assumption was supported by the cross-tabulation analyzes: the more employees a company has, the more frequently we find conflict between individuals. For example, 80 percent of those companies which employ 101-500 people and 100 percent of those companies which employ between 1001-5000 face this problem. Conflicts among companies and employees most commonly occur in the case of large companies; in two-thirds of such firms (employing more than 5,000 people), while in those with fewer than 51 employees this problem emerges only in one out of ten companies. Examining the ownership structure in the Czech Republic, the frequency of conflicts between companies and individuals is almost the same, about 80% for both domestic- and foreign-owned companies. At the same time, in case of domestic-owned companies, there are fewer conflicts between the company and its employees (26.9%) compared to the foreign owned counterparts and its employees (35.4%). The appearance of foreign workers in a given workplace does not really affect the proportions of individual conflicts (if they are present, conflict rates are 86.4% and if they are not, 87.5%).

In Hungarian organizations, most often found problems occur between individuals and teams and between the company and the employees. Based on the size of the organization, it can be said that individual conflicts are more common (frequency above 90%) in larger companies and among those which employ less than 50 employees (85.7%). One in two employers in the 51-100 group has had such an issue, while for those firms with over 5,000 employees this proportion is only 20%. Based on the ownership, there is no significant difference in the incidence of conflicts between individuals. Individual conflicts occur with a frequency of 85.9% in Hungarian-owned companies and 88.9% in their foreign-owned counterparts. Team conflicts occur in 23.1% of domestic companies and in 37% of foreign companies.

Conflicts in Slovak companies are similar to those in Czech organizations. In the case of Slovak companies, individual conflict is more common (91.5%) in smaller firms (fewer than 50 employees) than in larger ones (75% for companies employing 1001-5000 people). Some 50% of companies which have more than 1000 employees face conflicts arising between the employees and the firm itself, which is a much higher proportion than what we can see in the case of small companies (10.6%). Conflicts between individuals occur more often in Slovak-owned organizations (92.1%) than in their foreign-owned counterparts (88%). Conflicts between the company and the employers, however, are more frequent among foreign-owned firms (17.5% for Slovaks and 48% for foreigners). Companies spend at least 10% of their working time dealing with internal conflicts, while 2.1% of organizations spend up to 30-40%. Fully 86% of Czech companies, 73% of Hungarian companies and 81% of Slovak companies spend at least 10% of their working hours responding to internal conflicts. Some 79% of organizations focus on managing external conflicts for at least

10% of their working time. 85% of Czech participants, 73% of Hungarian and 74% of Slovak respondents do so. Some 9% of companies use mediation as a method of resolving conflicts. There was no difference in the three countries' organizations in this respect: Pearson's Chi test:, 847 df: 2, sign: 6.555,  $p > .05$ . 7% of Czech organizations, 11% of Hungarians and 10% of Slovaks use this tool. 88.7% of the organizations have not used mediation in the last two years, but 4% of the companies have done so at least once. The success rates of commercial mediation are shown in Table 6:

Table 6: Success rate (%) of mediation

Successfulness of mediation	%
Thanks to mediation, the disputes were settled and the parties reached a full agreement	72.4
Thanks to mediation, the disputes were settled and the parties partially reached an agreement.	17.2
Disputes were not resolved, but no court action was taken.	6.9
Disputes were not resolved and court proceedings were initiated.	3.4

Source: the authors' own research

On the basis of the frequency of success, it can be seen that most parties reached a complete agreement in almost all cases. When examining success, no significant difference could be identified between countries: Pearson's Chi-square: 6.059 df: 6- sig.:417  $p > .05$ .

Some 85.7% of Czech companies settled disputes successfully through mediation; 14.3% did not settle the issues, however, no court proceedings were initiated between the parties after the failure of mediation. In Hungary, 76.9% solved the issue completely through mediation, 15.4% partially resolved it via mediation, and 7.7% went on to court. In Slovakia, 72.4% resolved the issue entirely through mediation, 17.2% achieved only partial results through mediation, 6.9% did not resolve but did not go to court as well, and only 3.4% went on to court. In the Czech Republic, 7.4% of the organizations surveyed will use mediation as a tool for conflict management, in Hungary this statistic was 11.1% while in Slovakia it was 10.2%. Finally, 73% of companies stated that they do not want to introduce mediation as a practice at the company, but 20% will consider it as a conflict-management tool, 1% will use it as a labor law instrument, and 5% reported they would use it as an internal mediator. The characteristics and composition of the organizations did not show significant differences. The organizations did not differ from country to country. In case of conflict, 2.1% of Czech firms involve an internal mediator to resolve the issue; this is true for 7.2% of Hungarian firms while 3.1% of them will use mediation as a labor law tool. In Slovakia, 5% of respondents think that they will have an internal mediator and 2.1% will use it as a labor law tool.

The authors also examined mediation in organizations based on company size, as the second hypothesis is related to the number of employees. The researchers formed three categories based on company size.

The first group consisted of companies with fewer than 50 employees, the second with more than 50 but fewer than 500 and the third with 500 employees or more. There were 122 companies in the first category, 105 in the second and 67 in the third. 3 respondent companies did not participate in the investigation since they did not provide information on the size of their company. Cross-table analysis was used to examine the extent to which each type of conflict is affected by the size of the organization. The typologies of conflict as previously presented were: between individuals, teams, company and employees, company and suppliers, company and B2B clients, company and foreign parent company, company and state. Table 7 shows the types where significant differences could be identified based on different company sizes:

Table 7: Relationship between Conflict Type and Company Size ( $P = 0.05$ )

Number of employees	Between teams		Chi-square test		
	No	Yes	Value	df	Sign.
Fewer than 50	91.0%	9.0%	9.04	2	0.011
Between 50-500	79.0%	21.0%			
500 and above	76.1%	23.9%			
Total	83.3%	16.7%			
	Between company and employees		Chi-square test		
	No	Yes	Value	df	Sign.
Fewer than 50	88.5%	11.5%	24.876	2	0
Between 50-500	70.5%	29.5%			
500 and above	56.7%	43.3%			
Total	74.8%	25.2%			

Source: the authors' own research

The data in the table suggests that, as the size of the company increases, the frequency of conflicts between teams and between the company and employees also increases. This is logical, since the more people work within an organization, the more likely it is that conflict situations will occur. Although there was no significant difference between individuals in the sample, it was supported by the fact that the frequency of employee-to-employee problems was more common in a larger organization than in a smaller one. Mediation has been used by at least 12% of firms with fewer than 50 employees, 14% of those with more than 49 employees but fewer than 500 and 8% of larger firms over the past two years. In terms of success, Table 8 summarizes the results:

Table 8: Relationship between Conflict Type and Company Sizes

Conflict type	Company size		
	Fewer than 50	Between 5 and 500	500 and above

		500	beyond
Thanks to mediation, the disputes were settled, and the parties reached a full agreement	75.0%	66.7%	80.0%
Thanks to mediation, the disputes were resolved, and the parties partially reached an agreement.	8.3%	25.0%	20.0%
Disputes were not resolved, but no legal action was taken.	8.3%	8.3%	0.0%
Disputes were not resolved, and legal actions were taken.	8.3%	0.0%	0.0%

*Source: the authors' own research*

The data in the table show that mediation was the most successful in large organizations, although the number of cases in which small entities eventually did go to court was relatively small.

## Conclusions

In our research, we aimed to examine how organizations practice mediation and commercial conflict management in three Central European countries, namely in the Czech Republic, Slovakia and Hungary. To do this, we looked at the concept of organizational conflict, its escalation and the set of conflict-management strategies. After the introduction of the theory, we analyzed the practice of organizational mediation in all of the three countries. Mediation was introduced in all of them after the change of the political system in the 1990s. The laws regulating it were passed by legislative bodies a few years later, at the beginning of the new millennium. Since the system of mediation and regulations differs (See Table 2) in the three countries, we assumed that mediation practice and success would differ too. Our second hypothesis is that the nature of conflict and the success of mediation are influenced by the size of the organization. Our questionnaire-based survey, including three topics (organizational characteristics, organizational conflict characteristics, use of mediation), was carried out at 297 companies (101 Czech, 108 Hungarian and 88 Slovak). Based on our results, both of our hypotheses are rejected. Surveys in the given companies have shown that many forms of conflict can be identified – between individuals, teams, between companies and their employees, and between companies and their external parties (business partners and state). Results of the survey confirmed firms still use mediation as a conflict-management tool in a relatively narrow range. The authors therefore reject Hypothesis 1. Based on this, it can be stated that the companies examined in the three countries showed no difference in respect of mediation. Further research will show what drives management in companies not to use a tool, which has proved itself successful.

Concerning the second hypothesis, there could be seen differences in terms of mediation issue in organizations of different sizes, nevertheless it is not possible to state unequivocally that they behave differently. The authors also reject this hypothesis. Surveys at the given companies have shown that many forms of conflict can be identified, yet firms still use mediation as a tool for conflict-management to a relatively

limited extent. Slightly different types of conflicts dominate in the countries we examined. In the Czech Republic and Slovakia, conflicts between individuals, conflicts between companies and their employees, conflicts between companies and B2B clients can be identified most commonly. Meanwhile, in case of Hungarian organizations there is more often a problem between individuals, teams and in regard of companies and their employees. Although mediation can be considered as a very successful tool, organizations rarely apply it. In this respect, the authors reject their first hypothesis. Based on this, it can be stated that the companies examined in the three countries showed no difference in respect of mediation.

Overall, we can say that the practice of mediation has been on in the three analyzed Central European countries; however, there are still huge untapped opportunities in the field. The widest possible use of mediation can advance an increase in organizational satisfaction (Bingham, 2004; Seargeant, 2005), a strengthening of organizational trust (BIS, 2011) and an improvement in workplace relationships (Saundry et al., 2013). Mediation has an impact on improving the conflict management skills of leaders (Bingham, 2004) and on the development of problem-solving skills too (Kressel, 2006). Ultimately, mediation also has an impact on the entire organizational culture. The introduction of organizational mediation increases employee trust in the organization itself, in the field of interpersonal relations (Olson-Buchanan & Boswell, 2008) and, last but not least, it results in a reduction in the number of conflicts (Mareschal, 2005). The aforementioned together increase the efficiency of organizations, the functioning of organizations and thus the net output performance.

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# Promotion of socially responsible business in transport companies in Serbia<sup>1</sup>

Промоција друштвено одговорног пословања у саобраћајним предузећима у Србији

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**Abstract:** The topic of this paper represents a relatively new and still evolving term of socially responsible business, with a focus on application of this concept to transport companies. The goal of this paper is to formulate, in accordance with results gained from the study, concrete potential guidelines for more socially responsible business of transport companies in the Republic of Serbia. Considering multiple positive effects of socially responsible business, confirmed by numerous study activities and practical examples, as well as the fact that influences on one of the key external dimensions of socially responsible business – the environment – are most directly connected with transport business, and, finally, observing traffic as connective tissue of the entire economic system that gives purpose to all areas of material production, this paper analyses, in addition to the nature of the link between economic and social performance, the degree of application of socially responsible business in transport companies in the Republic of Serbia as well.

**Key words:** socially responsible business, transport, management

**JEL classification:** M14, R11

**Сажетак:** Предмет рада представља релативно нов и још увек еволуирајући термин друштвено одговорног пословања, са фокусом на примени овог концепта у саобраћајним предузећима. Циљ рада је формулисање, у складу са добијеним резултатима истраживања, конкретних могућих смерница за друштвено одговорније пословање саобраћајних предузећа у Републици Србији. Узимајући у обзир бројна истраживања и примере из праксе о потврђеним вишеструким позитивним ефектима друштвено одговорног пословања, као и чињеницу да се утицаји на једну од кључних екстерних димензија друштвено одговорног пословања – животну средину – најдиректније повезују са саобраћајном

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делатношћу, и, коначно, посматрајући саобраћај као везивно ткиво целокупног привредног система које све области материјалне производње чини сврсиходним, у раду се анализира, осим природе везе између економских и друштвених перформанси, и степен примене друштвено одговорног пословања у саобраћајним предузећима у Републици Србији.

**Кључне речи:** друштвено одговорно пословање, саобраћај, менаџмент  
**ЈЕЛ класификација:** М14, Р11

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## Introduction

Aside from economic, legal and ethical responsibility, today's businesses are also expected to implement socially responsible behaviour as well. According to Berber, Slavić and Aleksić, the increasing intensity of business changes is a reflection of today's modern business (Berber et al., 2019, p. 5). What is more, social community has certain economic, legal, ethical and philanthropic expectations from companies (Sekulić & Pavlović, 2018, p. 60). Basically, it is commitment of a company to perform its activities in a way accountable to all its stakeholders (Marković et al., 2020, p. 2). While economic responsibility includes making products that are useful for society, legal responsibility states that all organizations must make sure that each employee is familiar with and adheres to the relevant laws (Sullivan, 2009, p. 5-9). Ethical responsibility represents respect for ethical principles. The most common problem of this responsibility is the ethical dilemmas which unambiguously indicate the fact that, although some ethical questions are easily solved, there are many that do not have obviously correct or incorrect answers.

There is an increased frequency in the case that people want information about a company which justifies its social responsibility and responsibility to the environment, so that they can decide which company to buy from, which company to invest in, and which company to be employed in (Hatch & Scultz, 2008). Kotler (Kotler & Keler, 2017) states the following reasons for investing in corporate social responsibility (p. 664): companies must be different; clients will prefer companies that nurture citizen virtues; companies need a decision framework in order to face daily requests for sponsorships, better healthcare, prevention of injuries, protection of the environment and contribution to the community; company leaders and boards must realize which social pressures and possibilities their companies may face; companies must build a strong positive public reputation in order to neutralize potential negative criticism; employees, investors and partners will be more motivated and more loyal.

The author has selected the analysis of socially responsible business in transport companies for two reasons. First, defined as the fourth area of material production, transport business is represented as the activity without which undisturbed process of social reproduction would be impossible. Second, of all economic activities, transport has the most direct and strongest influence on the environment, as one of the key dimensions of socially responsible business.

## 1. Social responsibility as the concept of modern business

Although socially responsible business has been debated in expert circles for several decades, it can be said that this is term which is new, evolving, relatively undetermined and insufficiently understandable for general public, and still does not have a generally accepted definition.

The principles connected with the existing definitions of corporate social responsibility include: involvement in the life of a community, accountability, sustainability, transparency, ethical behaviour, respect and inclusion. Socially responsible companies keep to the “triple result” principle, taking into consideration social, economic, and environmental influence (Randjić & Bogetić, 2012, p. 261). Environmental and social impact are becoming one of the major shareholders’ concerns (Denčić-Mihajlkov, 2020, p. 26). Also, according to Redžić (2018, p. 16) one of the basis that community impacts is being assessed on is comparison with competition. Furthermore, there is a clear distinction in Anglo-Saxon stances on social responsibility of companies and stances of continental Europe and Japan, where, historically speaking, corporations have developed more as instruments of the state. In the United Kingdom and the United States, companies could freely create profit, provided that no law was being broken. In Japan and Europe, companies were expected to open as many job openings as possible and, for example, to build a state defines system (Hindl, 2006, p. 40). In July 2001, in Brussels, the European Commission declared the so-called “Green Paper”, which promotes socially responsible business in countries of the European Union. According to this paper, socially responsible business can be perceived through multiple dimensions, such as (European Commission, 2001): investment in human resources, adjustment to changes, rational use of resources and energy, development of the local community, improvement of partner relationships, human rights, and preservation of the environment. Besides this, importance of corporate social responsibility is also notable as the concept with the great concern in one more international institution such as United Nations (Dragičević-Radičević et al., 2020, p. 331).

According to Mary Coulter, corporate social responsibility is about the existence of various stakeholders and how organizations treat them (Coulter, 2010, p. 61). Stakeholders are persons or groups who have an interest in a company’s business and who are influenced that business (Donaldson & Preston, 1995, p. 65-91). Furthermore, corporate social responsibility represents an obligation of decision makers on specific organizational levels to decide and act in a manner which displays mutual connection of companies and the society (Wood, 1991, p. 691-718). Social responsibility is an obligation of a company to follow a policy, make decisions and undertake actions that benefit society (Bower, 1953). Corporate social responsibility departments are usually included in communications, marketing relations, or corporate foundations department (Abad-Segura et al., 2019). Finally, according to a recent study (Grubor et al., 2020, p. 5) corporate social responsibility represents a balanced concept of economic, social and environmental performances and goals.

## 2. Socially responsible business vs. profitability

By analysing one of the four basic principles by the founder of scientific management, Frederick Taylor, which implies solid cooperation between managers and employees, we can perceive an analogy of the nature of the relationship between subjects in the aforementioned principle and economic and social aspects of business.

According to Lashinsky (2007), Taylor wrote: “Most of these people believe that essential interests of employees and employers must be conflicted. On the contrary, scientific management is based on a deep conviction that the real interests of those two groups are actually the same. Years of progress are not possible for an employer if it does not imply progress for employees as well. Aside from that, it is possible to give an employee what he wants the most – high salaries – and provide an employer with what he wants the most – low labour cost – for their production operations” (p. 70). Therefore, although there is a clear distinction between those who plan and those who perform, according to Taylor there are no conflicts of interest between managers and employees because their goals are on the same side. On the other hand, the claim about the existence of a negative relationship between economic and social functions is justified. Socially responsible business frequently results in reduced profitability. Milton Friedman, the most prominent supporter of this belief, has claimed that corporate social programs must be paid to an extent, which contributes to the increase in business costs. These costs could either fall on buyers through increased prices, or be borne by the organization. In any case, profitability will decline since buyers will make fewer purchases at higher prices or costs of the organization will increase (Coulter, 2010, p. 63).

However, a deeper analysis indicates a more layered and more complex relationship, between employees and managers, as Taylor explains, as well as between social and economic functions of a company. Aside from clients’ needs, modern business imposes a necessary condition for survival on the market on companies, which is satisfaction of needs of stakeholders who represent all interests, external or internal, joined for satisfaction of clients’ needs. Furthermore, they rightfully evaluate their fees for their contribution (Adižes, 2012, p. 49). Finding a golden mean in order to fulfil requests of various stakeholders is a complicated process, since they often have a wide array of needs and conflicting expectations (Lerner & Fryxell, 1994, p. 58-81). Only by stratification and essential understanding of relations between economic and social functions can we ‘discover’ the transformation of nature of the relationship between these elements, from negative to positive. Besides, Friedman himself has stated that companies should be socially responsible, that the purpose of their existence as parts of society should not be based solely on making profit, but on the aspiration for a greater good, something moral, which undoubtedly leads to ethics. Etymologically, the label ethics is related to the Greek word *ethos*, something that was established by ancient customs as human actions and behaviour. The word *ethos* was replaced by the Romans with their own word *mos* (genitive: *moralis*) which is the origin of the word moral. Aristotle, as the founder of ethics, was

responsible to answer whether moral was conditioned by something. According to him, all people by their nature strive to accomplish something good and something that brings happiness. The changed modern society forces the business world to, among other things, adjust their activities more with ethical principles for achieving that (greater) good.

According to Morsing and Spence (2019), “the next wave requires greater sophistication and links across aspects of socially responsible business that address both theoretical and practice-based problems and challenges” (p. 1922). A recent study has shown that buyers are prepared to pay more for goods that are known to be produced in accordance with ethical standards. More importantly, they will buy products that were manufactured contrary to the ethical standards – by exploiting workers, for example – only at huge discounts (Trudel & Cotte, 2008). Moreover, some individuals believe that ethics affects individuals as well as organizations, and that it should be a part of strategic management (Singer, 1994, p. 192-213). It is clear that misunderstanding or ignoring stakeholders’ needs, as well as delays in satisfaction of companies, frequently leads to less profitable business, loss of competitive advantage, and, ultimately, to bankruptcy. Economic performance is a variable category for socially responsible companies as well as for companies that are not socially responsible. Therefore, profitability should not be the primary or the only motive for socially responsible business. Finally, hypothesis in a recent study was that enterprise sustainability led to improved enterprise performance in the long run (Domanović et al., 2020, p. 13).

### **3. Significance of socially responsible business in transport companies**

Although numerous studies indicate that the contribution of ecological and safety transport costs in gross domestic product is significantly higher than the contribution of transport in creation of gross domestic product, not one economic system in the world can renounce these activities, which can be explained by one of two reasons for the choice to analyse socially responsible business specifically in transport companies.

Although, according to Marx’s labour theory that the nature of a product determines the nature of the activity, transport can be defined here as the service sector, considering that the result of this activity is a service (of transport), it is still defined as the fourth area of material production due to its significantly vital value for the functioning of the entire economy. Each production process begins with a single goal, which is to give consumption value to a product. This goal is realized at the moment when the product is consumed by someone for whom the product was initially intended. However, the most common place of production and place of consumption are separate, by time as well as territory. In order for a manufactured product to be consumed, it must be transported from the manufacturing spot to the consumption spot, i.e. the market, after which its consumption value has been realized. Each production process ends when the consumption value is realized, otherwise each and entire production process would be incomplete, meaningless and useless. The activity which ‘erases’ time and space between a production spot and consumption spot,

thanks to which each production can be complete, meaningful and useful, is the transport activity. That is why transport is an 'extension' of the entire process of social reproduction, its connective tissue, the bridge without which that process would be halted and incomplete.

Furthermore, considering that socially responsible business answers many environmental questions stemming from performing the transport activity, permanent promotion of the concept of socially responsible business in this activity is of huge significance. Removal of green areas, fragmentation of natural habitats, climate change, exhaustion of non-renewable natural resources and energy consumption, noise, pollution of air, soil, and water, these are only some of negative influences of transport on the environment. Congestion of transport infrastructure (roads, railroad network, airways and airports) is a distinct problem on certain transport routes and corridors in Europe. With increased intensity of traffic, the number of traffic accidents is rapidly increasing and the number of casualties on the roads in Europe amounts to several tens of thousands each year, which is equal to casualties of a regional war (Božić et al., 2017, p. 142). When it comes to the Republic of Serbia, the Traffic Safety Act has brought certain changes in the number of casualties, which is currently insufficient for a long-term increase in traffic safety (Petrović et al., 2020, p. 483). Additionally, there is no doubt that one activity always results in benefit for some, and expense for others, which leads us to the term distortion, which exists if the marginal expense of society in relation to production of a good (e.g. transport services) is not equal to the marginal benefit of a society from the consumption of that good (Begg et al., 2010, p. 264). When it comes to the transport sector, a problem appears since there is no market for things such as noise, pollution or congestion, externalities which are inseparable from transport companies and transport activity as a whole. Thus, a market that does not exist cannot bring balance between a marginal benefit that one party gains by causing congestion, for example, and a marginal cost of this externality borne by another party.

Aside on a macro level, application of a strategy for sustainable transport is important on the level of individual companies as well. Some advantages of environmentally oriented transport companies would include: maintaining competitive advantage, better market image, better communication with clients, support by a larger community, etc. One of the ways for a traffic company to fulfil stakeholders' requests related to social responsibility is a proactive strategy, i.e. a strategy with which a company predicts responsibility for a problem that has not appeared yet. An example of a good practice is the company Honda Motors. This company has announced that they will include side air curtains (lowered from the headliner and protecting passengers' heads) and front side airbags (which are installed in the doors and protect from impacts from the side) in the standard equipment package for all their cars. Although manufacturers of more expensive cars, such as Lexus and Volvo have already offered these safety measures, the company Honda was the first to include them in the standard equipment package for all its models (Williams, 2010, p. 75).



## **4. Methodology**

### **4.1. Aim of research**

The goal of the survey was to determine the level of application of socially responsible business in surveyed companies. The survey was completely anonymous, which contributed to honesty and objectiveness of the respondents while answering, which, finally, certainly increased the significance of the survey and the quality of the results.

### **4.2. Method**

According to the level of conclusion generalization, the study was operative since a relatively small sample of 50 respondents was used. An explicative type of empirical-experimental method was used, since the study included collecting field data. Although it originates from a complex modern business environment, with equally complex and numerous needs and requests, the hypothesis formulation is fairly simple:

Economic performance is better in (transport) companies which lead their business in a socially responsible manner, than in the companies who do not.

The confirmation of the hypothesis could additionally motivate transport companies to conduct more socially responsible business, taking into consideration the positive relationship between socially responsible business and the primary goal of every organization, profitability, in the hypothesis.

### **4.3. Description of the sample survey**

The study was performed in August, 2020, with a sample of 50 respondents who were, at the time of the study, employed at 5 transport companies in the Republic of Serbia, four of which were in private property and one in state property. 10 respondents were surveyed in each company, on positions of top management, middle line management and first line management. The surveyed companies were marked with letters A, B, C, D and E. Economic performance of the companies was the criterion for assigning specific letter labels, in the following manner: the company labelled A has the best, and the company with the label E has the worst economic performance.

### **4.4. Procedures**

A closed-ended survey was used as the study technique. By using the model of socially responsible business in accordance with the “Green Paper”, we formulated two types of ten survey questions. For the first type of questions, the respondents were to answer with a ‘yes’ or ‘no’ (Table 1), and for the second type the respondents were to grade levels of application of a specific dimension of socially responsible business. The grades ranged from 1 to 5, with the following interpretations: grade 1 as very high, grade 2 as relatively high, grade 3 as moderate, grade 4 as relatively low, and grade 5 as very low level of application of a specific dimension of socially responsible business (Table 2).

## 4.5. Data analysis

Answers for the first group of questions are provided in Table 1.

Table 1: The results for the examination regarding the level of application of socially responsible business in transport companies for the first group of questions (in percent, %)

Questions	Have you or one of your colleagues ever been exposed to some form of discrimination?		Are ethical principles respected in your workplace?		Does your company participate in public benefit campaigns?		Is the strategy for use of healthier technology applied?		Are educative programs regarding environment protection organized?		Is the strategy for reduction of emission of harmful materials adopted?	
	yes	no	yes	no	yes	no	yes	no	yes	no	yes	no
Companies' responses												
Company "A"	0	100	90	10	70	30	80	20	90	10	100	0
Company "B"	10	90	80	20	80	20	90	10	100	0	70	30
Company "C"	50	50	40	60	60	40	70	30	50	50	70	30
Company "D"	80	20	30	70	60	40	30	70	30	70	20	80
Company "E"	80	20	20	80	0	100	0	100	0	100	0	100

Source: the authors' research results

In companies A and B there were almost no forms of discriminatory behaviour recorded (only 1 affirmative answer in the company B), while the situation is less favourable in company C, and even more so in companies D and E (8 affirmative answers were recorded for each, or 80%). A high level of respect for ethical business principles was present in companies A and B, while that level was significantly lower in other companies. Company B had the greatest participation in public benefit campaigns, while complete absence of participation was recorded in company E (zero affirmative answers, i.e. 10 negative answers, or 100%). While usage of healthier technology is implemented in companies A and B, this implementation is completely absent in company E (zero affirmative answers). In companies A and B there are occasional educative programs related to protection of the environment, while in other companies this education is almost absent (10 negative answers were recorded for company E, or 100 %). Regarding the application of a strategy for reduction of emission of harmful materials, the absolute application, with ten affirmative answers, was recorded in company A, while the absolute absence of application, with ten negative answers, was recorded in company E. Answers for the second group of questions are provided in Table 2.

Table 2: The results for the examination regarding the level of application of socially responsible business in transport companies for the second group of questions (in percent, %)

Questions	Evaluate the level of help and support during the company's restructuring					Evaluate the level of the company's preservation of natural resources					Evaluate the level of the company's contribution to the local community development					Evaluate the level of responsibility when using non-renewable resources				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Companies' responses																				
Company "A"	80	20				80	20				70	20	10			100				
Company "B"	70	30				80	20				70	10	20			80	20			
Company "C"			50	50					50	50			40	20	40			30	20	50
Company "D"				50	50				60	40				80	20				30	70
Company "E"				90	10				10	90				20	80					100

Source: the authors' research results

In company A most respondents graded the level of help and support during the company's restructure with the highest grade (very high), while in company E as many as 9 respondents (90%) chose the grade four, as a relatively low level of application of a specific dimension of socially responsible business. Regarding the level of preservation of natural resources, the highest grades were recorded in companies A and B, and the lowest grades in company E (9 respondents, or 90%, graded the level of application of the given dimension as very low). The highest level of contribution to the local community development was recorded in companies A and B, and the lowest level in company E. Very high level of responsible usage of non-renewable resources was recorded in company A (all 10 respondents, or 100%, graded the level of application of this dimension with the highest grade), while in company E an opposite situation was recorded – all 10 respondents, or 100%, graded the level of application of this dimension with the lowest grade, very low.

In the companies with the best economic performance, which are companies A and B, the highest level of application of socially responsible business was recorded, slightly lower level of application at companies C and D, while the business practice with the highest deviation from the concept of socially responsible business was recorded in company E, which had the lowest economic performance.

The company labelled C is the only state-owned surveyed company. The results of the research indicate a relatively moderate degree of application of socially responsible business, since in the first group of questions, out of a total of 50 answers, 34 are affirmative (68%) and 26 negative (32%). In addition, the average grade of the degree of application of a specific dimension of corporate social responsibility is 4.15, which is interpreted as a relatively low grade.

Table 3. Number of managers according to the level of management in the surveyed companies (in percent, %)

Companies/Level of management	Top management	Middle line management	First line management
Company "A"	10	30	60
Company "B"	20	30	50
Company "C"	40	30	30
Company "D"	40	30	30
Company "E"	60	30	10

*Source: the authors' research results*

In company A as a company with the best economic performance, the highest number of affirmative answers to the first group of questions and the highest assessments of the degree of application of a specific dimension of corporate social responsibility in the second group of questions, was given by first line managers (6 respondents or 60% of the total respondents), followed by middle managers (3 respondents or 30% of the total respondents), and only one respondent from the position of top management (10% of the total respondents). The opposite conclusion can be drawn for the company E as the company with the weakest economic performance. The highest number of negative answers to the first group of questions and the lowest assessments of the degree of application of a specific dimension of corporate social responsibility in the second group of questions, was given by top management (6 respondents or 60% of the total respondents), followed by middle managers (3 respondents or 30% of the total respondents), and only one respondent from the position of first line management (10% of the total respondents).

Aside from a moderate level of application of socially responsible business practices, as well as the positive relationship between levels of application of socially responsible business and economic performance, the study was also meant to confirm a significant overlap in differences in the levels of application of socially responsible business and differences in economic performance. Although the study results have confirmed a positive relationship between levels of application of socially responsible business and levels of economic performance (observing data in Tables 1 and 2, it is easily concluded that from the most profitable company A to the least profitable company E the level of application of socially responsible business decreases, respectively), aside from the unexpectedly low level of application of socially responsible business, it is also surprising to find out that differences in the level of application of socially responsible business are significantly above differences in economic performance of these companies. Partially met expectations indicate the conclusion that the hypothesis of the paper itself can only be accepted partially and conditionally.

## Conclusion

While the traditional method places focus on the company's profit as the primary goal of business, socially responsible economy is directed at establishing economic activities in the context of a social system. With the increasing pressure of population growth and the environment, we must modify either our goals or methods that we choose to accomplish them (Harris, 2009, p. 29). Since the effects of transport activity are directly related to the

environment, it is crucial to motivate transport companies to conduct their business in a more socially responsible manner. Considering the overall significance of application of socially responsible business, in accordance with the study results, the following are concrete potential guidelines for more socially responsible business of transport companies in the Republic of Serbia:

- Formulating a strategy in which models directed at stakeholders are mutually harmonized. Harmonization of goals such as fulfilling stakeholders' needs, performing activities for mutual benefit, satisfactory profitability and interest of various stakeholder companies
- Experience of numerous successful managers undoubtedly indicate the fact that the main difference between the leading companies and their competitors is the treatment of employees by the management. One of the management practices, with the treatment of employees as the essential source of competitiveness, includes among other things the following: ensuring safety of the workplace, organized training and developing employees' skills, selective employment, absence of status differences, etc.
- Promoting behaviour directed at strengthening relations. Contrary to the opportunistic behaviour, in which one party gains benefit at the other party's expense, the management of a company needs to focus on strengthening a long-lasting and positive relationship with buyers and suppliers.
- Determining and maintaining appropriate organization culture. Consistency of organization culture should be ensured by actively transferring organizational values, beliefs and stances.
- Defining a vision with a focus on the values of socially responsible business. A vision of a transport company might be: "the most respected automobile company in Europe". Aside from clearly indicating the purpose of the company's existence to the employees (production of cars) it also indicated the most important values (success and respect).
- Introduction and application of a program adjusted to ethical principles. Encouraging ethical behaviour at work and implementing a penal policy for inappropriate behaviour at work. Some of the ethical principles could be: the principle of state regulations, personal virtues, individual's rights, utilitarianism, etc.
- Formulation and implementation of a proactive strategy. This strategy represents one of the best forms of answers to the society's requests, since it predicts a problem and, before it appears, the company undertakes the responsibility of solving that problem.
- Helping and supporting employees during organizational changes. Some of the forms of help could be: presenting the reason for change, showing empathy, guaranteeing job safety, organizing education for employees in order to facilitate fulfilment of new requests, etc.

- Establishing and respecting a penal policy for all forms of discriminatory behaviour. Some of the most common forms of discrimination at work are related to: race and ethnics, disability, age, or sex.
- Employing charismatic ethical leaders. Ethical leaders use their powers to serve others, they instigate two-way communication since they value other people's opinions, they emphasize the importance of employees' improvement, etc.
- Minimizing transport costs. Some of the measures for accomplishing this goal could be: shorter transport routes, construction of transport infrastructure, computerization of dispatch systems, automation of reservations and issuing tickets, etc.
- Maximizing traffic safety. Better availability of new techniques to traffic participants, as well as consistent application primarily of preventive-educational, and then repressive measures.
- Rational consumption of energy. This goal can be realized by application of new scientific discoveries.

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# Research on tourists' satisfaction with the gastro offer of Novi Sad

## Истраживање задовољства туриста гастро понудом Новог Сада

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**Abstract:** Vojvodina has long been known as an area of high-quality and varied food. In this regard, gastro tourism in its capital is one of the most attractive tourism products. That is the reason why our research was conducted in Novi Sad, aimed to examine the satisfaction of domestic and foreign tourists with the gastro offer of this city. The results of the research show that the gastro offer of Novi Sad is an important motive in attracting both domestic and foreign tourists, but that foreign tourists are still more satisfied with it. Further, there are differences in attitudes between male and female tourists, because male tourists show a higher degree of satisfaction with the gastro offer compared to female tourists, while other socio-demographic characteristics (education and age) are not related to the degree of their satisfaction. The results of the research can be useful in the development of future strategies for the development of tourism in Novi Sad and Vojvodina. They can also serve as a model for analysing tourists' satisfaction with other forms of tourism offer.

**Keywords:** satisfaction, tourists, gastro offer, Novi Sad, Vojvodina.

**JEL classification:** L83, Z32.

**Сажетак:** Војводина је од давнина позната као подручје квалитетне и разноврсне хране. С тим у вези, гастро туризам у њеном главном граду представља један од атрактивнијих туристичких производа. То је разлог због чега је у Новом Саду спроведено истраживање које је имало циљ да испита задовољство домаћих и страних туриста гастро понудом овог града. Резултати истраживања показују да је гастро понуда Новог Сада важан мотив у привлачењу и домаћих и страних туриста, али да су њоме ипак задовољнији страни туристи. Такође, постоје разлике у ставовима између мушкараца и жена, јер мушкарци исказују виши степен задовољства гастро понудом у односу на жене, док остале социодемографске карактеристике (образовање и године старости) нису повезане са степеном њиховог задовољства. Резултати истраживања могу бити од користи при изради будућих стратегија развоја туризма Новог Сада и Војводине. Такође, могу послужити и као модел за анализу задовољства туриста другим облицима туристичке понуде.

**Кључне речи:** гастро понуда, задовољство, туристи, Нови Сад, Војводина.

**ЈЕЛ класификација:** L83, Z32.

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## Introduction

At the global level, tourism is an industry that is growing fast and has a significant economic contribution, because it generates exports of \$ 1.7 trillion (Milićević et al., 2020). Constant changes in the tourist market, primarily on the side of tourist demand, have resulted in the emergence of specific forms of tourism, which includes gastro tourism (Skryl et al., 2018). One of the thematic types of tourism, with growing interest in recent years, is food tourism (Vuković & Mosurović-Ružičić, 2020). The basis of a specific tourism product is the uniqueness, authenticity and local factors of the destination (Milićević & Štetić, 2017). Gastro tourism primarily attracts tourists who study food and beverages and issues related to local gastronomy from various aspects: cultural, historical, religious, ethnological, anthropological, etc. (Bunja & Kaplan, 2020; Obonyo et al., 2012). According to World Tourism Organization, gastronomy is a strategic element in defining the destination brand and image (UNWTO, 2012). In many countries, gastro tourism is one of the most dynamic segments of tourism that attracts a large number of tourists (Williams et al., 2014). Today, an increasing number of tourists highlight very positive impressions regarding gastro products as part of their tourism experience in the destination (Park et al., 2020). Considering that gastro tourism is one of the fastest growing tourism trends, the growth in the number of tourists whose motive for travel is related to gastronomy is expected in the future as well.

The gastro offer of Vojvodina is very different from the gastro offer of other regions in Serbia. This is primarily a consequence of Vojvodina being exposed to Central European influence throughout history, i.e., the influence of German, Hungarian, Austrian and Slovak cuisines. Of the total number of events organized in Vojvodina during the year, about 40% are gastro events. Therefore, in relation to the area it occupies in Serbia, it can be concluded that the region of Vojvodina invests the most in the organization of gastro events (Kilibarda et al., 2018). Banić-Grubišić & Antonijević (2013) point out that gastro products represent a great chance for the future development of tourism and occupy a prominent place in creating the tourism product and creating the image of the destination.

The subject of this research is the analysis of the attitudes of domestic and foreign tourists about the gastro offer of Novi Sad, as one of the most attractive destinations in Serbia. The aim of the research is to determine the degree of tourists' satisfaction with the gastro offer of Novi Sad and whether there are differences in their attitudes, from the aspect of different socio-demographic characteristics. Socio-demographic characteristics of tourists, such as age, gender, education, working status and income, are often used in studies related to tourists and tourism destinations (Tomić et al., 2020; Milićević et al., 2020).

## 1. Literature review

Gastronomy is understood from the point of view of the historical development of the human diet, connecting nations and communities with creativity, participants' abilities, raw materials, traditions, methods and recipes, new technologies that contribute to and influence the human diet (Burešová et al., 2020). According to Stojković & Milićević (2020) "ever

since tourism became a global phenomenon, in recent decades there have been evident changes in the tourist demand” (p. 60). The decision of tourists to choose a particular destination is under influence of various factors (Đeri et al., 2017), such as tourist attractions of the destination, its offer of entertainment, culture, recreation, relaxation, but also gastro specialties (Ottenbacher & Harrington, 2010). The gastro offer of a tourism destination can be one of the main motives for tourists to visit (Kim et al., 2010). Gastro tourism is the journey of tourists motivated by the elements of the gastro specialties of a particular area. Possibilities of valorising the gastronomy of a specific area are numerous and they range from classic restaurants to gastro tours. Typical activities of tourists are eating and drinking, learning how to prepare meals, buying products related to food, attending cooking courses and gastronomy festivals (Milićević & Štetić, 2017). Boita, Anghelina and Costi (2014) state that gastro tourism is part of cultural tourism, which embraces traditional and culinary values in urban and rural settings with various specific activities. According to Martins (2016), gastronomy is an experience of participation in other cultures, connection with people, and places with a strong sense of self identity. Hall and Mitchell (2002) conclude that areas where technology and globalization have not changed the way of preparing and serving food and beverages, including consumption culture, have become very favourable for the development of gastro, that is culinary or gourmet tourism.

Gastro tourism plays an active role in the marketing of tourism destinations. At the same time, gastro tourism can be a huge opportunity for destinations that do not have natural beauties, such as coastal or mountainous destinations (Kurt & Dłużewska, 2018). The development of gastro tourism is also positively reflected on the development of rural areas (Njegovan, et al., 2015), due to the increasing demand for fruits, vegetables and cereals. Thus, gastro tourism has positive economic and socio-cultural effects on the development of the local community, but also on regional development (Gálvez et al., 2017; Šimičević & Štetić, 2011).

Research by numerous authors indicates that gastro tourists belong to the category of tourists who have a high level of education and income (Ardabili et al., 2011; Lee et al., 2015; Şimşek & Selçuk, 2018), which allows them to visit new destinations, get to know the local tradition and taste local gastronomic specialties (Dan, 2013). Today, more and more people travel motivated by gastronomy, so that food and drink are no longer just a complementary element of a destination's offer, but become a primary element of the tourism offer (López-Guzmán & Sánchez-Cañizares, 2012). Gastro tourism can be determined as a deliberate search for an attractive, authentic, unforgettable experience (Williams et al., 2014). Sormaz et al. (2016) also state that gastro tourism is one of the decisive factors in attracting tourists to a destination.

In recent years, the gastro offer of Serbia has become increasingly attractive for tourists (Čerović et al., 2015). Traditional food can have many positive effects on preserving local tradition, culture, old crafts, and the possibility to employ local residents (Krejić et al., 2016). Many domestic authors in their research deal with the potential for the

development of gastro tourism in Vojvodina. Some of them emphasize authentic food as a great potential (Kalenjuk et al., 2017), while others point to the possibility of developing specific destinations in Vojvodina, where quality food is the main motive for the arrival of domestic and foreign tourists (Vujko et al., 2016). Within the analysis of the development of tourism in Novi Sad, gastro tourism stands out as one of the main motives for the arrival of foreign tourists and a very attractive tourism product (Tourism Development Program of Novi Sad, 2018).

## **1.2. Methodological framework**

A survey of tourists who visited Novi Sad was conducted during January 2020, with the aim of examining the degree of satisfaction of domestic and foreign tourists with the gastro offer of Novi Sad, i.e., to determine whether their attitudes differ. Further, the aim of the research is to determine whether there are differences in the attitudes of tourists about the gastro offer of Novi Sad in relation to their socio-demographic characteristics (gender, education and age).

In order to collect the necessary data, the survey of tourists was conducted in Novi Sad hotels, so that tourists filled out printed questionnaires handed to them by receptionists when checking out of the hotel. 250 questionnaires were answered by 204 respondents, of which 102 were domestic and 102 foreign tourists. The questionnaire consisted of two parts. The first part referred to the socio-demographic characteristics of the respondents, while the second part consisted of five statements referring to the gastro offer of Novi Sad. Tourists expressed their views using a seven-point Likert scale, with a score of 1 indicating the lowest score (I completely disagree), while a score of 7 indicates the highest score (I completely agree).

Based on the subject and goal of the research, the following hypotheses are set in the paper:

H<sub>1</sub>: There are statistically significant differences in the attitudes of domestic and foreign tourists regarding the gastro offer of Novi Sad;

H<sub>2</sub>: There are statistically significant differences in the attitudes of tourists about the gastro offer of Novi Sad in relation to gender;

H<sub>3</sub>: There are statistically significant differences in the attitudes of tourists about the gastro offer of Novi Sad in relation to their level of education;

H<sub>4</sub>: There are statistically significant differences in the attitudes of tourists about the gastro offer of Novi Sad in relation to age.

The research process was conducted in the following stages: data collection, sorting, data grouping and statistical analysis using SPSS statistical program, version 17.0.0 and Microsoft Office Excel program for further processing. The data were first processed using descriptive methods and then inferential statistics.

## 2. Results and discussion

As already mentioned, the survey included 204 respondents of which 102 (50%) domestic tourists, and the same number of foreign tourists (102, i.e., 50%). Of the total number of respondents, 105 were male (51.5%) and 99 female (48.5%). The average age of foreign tourists was 40.6, while of domestic tourists 39.6 years. In terms of tourist education, the largest number of both domestic and foreign respondents have a university degree (Table 1).

Table 1: Socio-demographic characteristics of the respondents

		Foreign tourists (n=102)	Domestic tourists (n=102)
<b>Age</b>	Average value	40.6	39.6
	Median	38.5	39.0
	SD	8.9	8.1
	Span	24-65	25-59
male	N (%)	52 (51.0%)	53 (52.0%)
female	N (%)	50 (49.0%)	49 (48.0%)
High school	N (%)	21 (20.6%)	19 (18.6%)
College	N (%)	33 (32.4%)	28 (27.5%)
University Degree	N (%)	45 (44.1%)	47 (46.1%)
Master's Degree	N (%)	3 (2.9%)	8 (7.8%)
PhD	N (%)	0 (0.0%)	0 (0.0%)

Source: the authors' research

According to the aforementioned, domestic and foreign tourists evaluated the gastro offer of Novi Sad using the seven-point Likert scale. Based on the data from Table 2, it can be concluded that tourists (both domestic and foreign) rated the gastro offer of Novi Sad with a high average score (6.03). The average rating of foreign tourists is higher (6.36) in relation to the ratings of domestic tourists (5.71). The results of the Mann-Whitney test showed that  $p < 0.001$ , indicating a significant statistical difference in response scores between domestic and foreign tourists. Based on the obtained results, it is concluded that there are statistically significant differences in the attitudes of domestic and foreign tourists regarding the gastro offer of Novi Sad, whereby hypothesis H1 is accepted.

Table 2: Satisfaction of domestic and foreign tourists with the gastro offer of Novi Sad

Rates	All respondents	Domestic tourists n=102	Foreign tourists n=102
Average value	6.03	5.71	6.36
Median	6	6	7
SD	1.205	1.411	0.842
Span	2-7	2-7	4-7
Scale 1-7			
1 N (%)	0 (0.0)	0 (0.0)	0 (0.0)
2 N (%)	4 (2.0)	4 (3.9)	0 (0.0)
3 N (%)	4 (2.0)	4 (3.9)	0 (0.0)

4 N (%)	17 (8.3)	13 (12)	4 (3.9)
5 N (%)	29 (14.2)	17 (16.7)	12 (11.8)
6 N (%)	52 (25.2)	23 (22.5)	29 (28.4)
7 N (%)	98 (48.0)	41 (40.2)	57 (55.9)
Total N (%)	204 (100)	102 (100)	102 (100)

*Source: the authors' research*

The second hypothesis examines whether there are statistically significant differences in the attitudes of tourists about the gastro offer of Novi Sad in relation to gender. Tourists were asked through a questionnaire to express their degree of agreement/disagreement with the following statements: (a<sub>1</sub>) The gastro offer of Novi Sad is very diverse and high quality; (a<sub>2</sub>) The offer of restaurants in Novi Sad satisfies the needs of different types of tourists; (a<sub>3</sub>) I am very satisfied with the professionalism of the staff in Novi Sad restaurants; (a<sub>4</sub>) The diverse gastro offer makes Novi Sad more competitive compared to similar city destinations I have visited; (a<sub>5</sub>) The gastro offer of Novi Sad is an attractive tourist motive for me. The results of the research show that there are statistically significant differences in attitudes between male and female tourists regarding the above listed statements. This is especially pronounced for statements a<sub>3</sub>, a<sub>4</sub> and a<sub>5</sub> (Table 3). Namely, male tourists point out a higher degree of satisfaction with the professionalism of the staff in Novi Sad restaurants in relation to female tourists and believe that Novi Sad is more competitive on the market compared to other city destinations. In addition, for male tourists, the gastro offer of Novi Sad is a more attractive tourist motive compared to female tourists. Based on all the above, it can be concluded that hypothesis H<sub>2</sub> is accepted.

*Table 3: Satisfaction of domestic and foreign tourists with the gastro offer of Novi Sad in relation to gender (1- male, 2- female)*

	gender	N	Mean Rank
a <sub>1</sub>	1	102	94.73
	2	102	94.08
	Total	204	
a <sub>2</sub>	1	102	99.58
	2	102	95.44
	Total	204	
a <sub>3</sub>	1	102	107.55
	2	102	92.93
	Total	204	
a <sub>4</sub>	1	102	118.74
	2	102	105.07
	Total	204	
a <sub>5</sub>	1	120	118.51
	2	120	102.67
	Total	204	

*Source: the authors' research*

Hypothesis H<sub>3</sub> examines whether there are statistically significant differences in the attitudes of tourists about the gastro offer of Novi Sad in relation to their level of education, while hypothesis H<sub>4</sub> examines the differences in attitudes of tourists in relation to their age.

Based on the data from Table 4, it can be seen that the relationship between the age of tourists ( $y_1$ ) and the observed variables ( $a_1$ - $a_5$ ) is weak. Therefore, it is concluded that there is a slight influence and that there is no correlation at a statistically significant level, because  $p > 0.05$ . Also, in terms of examining the impact of the level of education of tourists on the degree of their satisfaction with the gastro offer of Novi Sad, it is negligible. The relationship between the level of education and the observed variables ( $a_1$ - $a_5$ ) is weak and there is no statistically significant difference. Therefore, hypotheses  $H_3$  and  $H_4$  are rejected.

Table 4: Satisfaction of domestic and foreign tourists with the gastro offer of Novi Sad in relation to age ( $y_1$ ) and level of education ( $y_2$ )

$r_0$ (p)	$a_1$	$a_2$	$a_3$	$a_4$	$a_5$
$y_1$	-.049 (.472)	-.019 (.680)	-.037 (.589)	-.031 (.870)	.022 (.546)
$y_2$	.011 (.850)	.128 (.059)	.038 (.574)	.033 (.448)	.105 (.098)

Source: the authors' research

## Conclusion

The search for attractive tourism destinations that will provide them with an authentic experience is the focus of today's contemporary tourists. Although Novi Sad is already a well-known gastro destination, creating an authentic gastro tourism offer would make this city an even more attractive gastro destination (Kalenjuk & Tešanović, 2013), both for domestic and foreign tourists.

Based on the conducted research, it is concluded that there are statistically significant differences in the attitudes of domestic and foreign tourists when it comes to their satisfaction with the gastro offer of Novi Sad. Statistical differences are also evident in terms of certain socio-demographic characteristics of the respondents, more precisely in relation to the gender of the respondents. In relation to other socio-demographic characteristics examined in the paper (level of education and age of tourists), it is concluded that the connection with the variables is weak, i.e., that they do not affect the level of tourist satisfaction.

The results of the research have a scientific and practical contribution. The scientific contribution refers to the unification of the results of the satisfaction of domestic and foreign tourists regarding the gastro offer of Novi Sad. The practical contribution is reflected in the possibilities of using the research results in the process of developing future strategies for the development of tourism in Novi Sad and Vojvodina. Further, the results can serve in identifying the wishes and needs of contemporary tourists, and help the restaurateurs of Novi Sad in forming the gastro offer. The main limitations of the research relate to the period in which the survey of tourists was conducted. Future research on gastro tourism in Novi Sad should be conducted throughout the year, and expanded to other

tourism destinations in Serbia, especially during large events, of which the gastro offer is an integral part.

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# Analysis of the tourists' motivation for staying in cities: The case study of the City of Belgrade

Анализа мотивације туриста за боравак у градовима:  
Студија случаја града Београда

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**Abstract:** This paper presents the results of research on the tourists' motivation for staying in the City of Belgrade. The purpose of this paper is to identify the motives for which tourists usually stay in Belgrade and to examine the existence of statistically significant differences between the motives of tourists depending on their socio-demographic characteristics (gender, age, education and origin). The research sample included 250 respondents who had stayed in Belgrade. Belgrade is the most visited destination of urban tourism thanks to the quality and diversity of tourist offer, which can satisfy different motives of tourists. In order to collect primary data, a survey method was applied while descriptive statistical analysis, t-test of independent samples and one-factor analysis of variance (ANOVA) were used to process the collected data. The research findings indicate that the largest number of respondents stayed in Belgrade due to: business reasons, scientific conferences, visits to relatives and/or friends, sightseeing of the city and nightlife. Based on the theoretical analysis and results of empirical research, the recommendations for future research were also presented in the paper.

**Keywords:** motivation, cities, socio-demographic characteristics, tourists, Belgrade.

**JEL classification:** L83, Z32

**Сажетак:** У овом раду су приказани резултати истраживања мотивације туриста за боравак у граду Београду. Сврха овог рада је да идентификује мотиве због којих туристи најчешће бораве у Београду и да испита постојање статистички значајних разлика између мотива туриста у зависности од њихових социо-демографских карактеристика (пол, старост, образовање и порекло). Узорак истраживања обухватио је 250 испитаника који су боравили у граду Београду. Град Београд је најпосећенија дестинација градског туризма захваљујући квалитетној и разноврсној туристичкој понуди која може задовољити различите мотиве туриста. У циљу прикупљања примарних података, примењена је метода анкете, док су за обраду прикупљених података коришћени дескриптивна статистичка анализа, т-тест независних узорака и једнофакторска анализа варијансе (ANOVA). Резултати истраживања указују на то да је највећи број испитаника боравио у Београду због: пословних разлога, научних скупова, посета рођацима и/или пријатељима, разгледања града и ноћног живота. На основу теоријске анализе и резултата емпиријског истраживања, у раду су дате препоруке за будућа истраживања.

**Кључне речи:** мотивација, градови, социо-демографске карактеристике, туристи, Београд.

**ЈЕЛ класификација:** L83, Z32

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## Introduction

Modern tendencies on the tourist market and individualization of tourist demand have contributed to greater recognition of cities as destinations that are recording increasing number of tourists. The reason for the growing interest of tourists to stay in cities is related to the fact that this type of destination has specific tourist resources that allow the formation of a unique tourist offer. Thus formed tourist offer of cities contributes to their recognizability on the international tourism market, as well as forming a recognizable image and brand which guarantees tourists high quality, and value for money (Podovac et al., 2020). The specificity of the tourism development in cities is reflected in their ability to meet the different needs, preferences and motives of tourists with their unique offer. The tourist offer of cities enables the satisfaction of a larger number of motives for the stay of tourists in cities, as a result of which it is difficult to identify and classify them. Urban tourism is a form of tourism which developed in parallel with mass tourism (Füller & Michel, 2014), but due to the orientation of tourist demand towards coastal destinations, it has not been in the focus of research for a long time (Pearce, 2001). The tendency of intensive development of urban tourism is conditioned by changes in the needs and desires of tourists as well as the fact that more frequent and shorter travels are significantly more common during the year (Podovac, 2017). In addition to being a type of destination with a multifunctional character, cities are important generators of economic development of the entire economy, having in mind the connection of tourism with other economic activities.

Belgrade stands out from all the cities in the Republic of Serbia according to the level of urban tourism development. As the main administrative, political, economic and cultural centre of the Republic of Serbia, Belgrade is a tourist destination, which is well positioned on the tourist market due to its favourable geostrategic position, natural attractions, rich cultural heritage, events, opportunities for nightlife and shopping as well as due to the existence of modern facilities for organizing business events (Podovac, 2016). Quantitative indicators point to the fact that Belgrade is the most visited city in the Republic of Serbia in terms of the number of tourists as well as in terms of the percentage share of foreign tourists in the total tourist turnover. According to the data of the Statistical Office of the Republic of Serbia (2020), 1,205,183 tourists stayed in Belgrade in 2019, which is 32.6% of the total tourist turnover of the Republic of Serbia. The percentage share of foreign tourists in the total number of tourist arrivals in Belgrade was 84.8% in 2019. Due to the large concentration of foreign tourists in Belgrade throughout the year, this city has built the image of an urban tourism destination on the tourist market. In addition, Belgrade is a destination which, with its complex and diverse offer, can meet different needs and motives of tourists for travel. The purpose of this study is to examine the motives of tourists for staying in Belgrade as well as the existence of statistically significant differences between the motives of tourists depending on their socio-demographic characteristics.

## 1. Theoretical background

Motivation in tourism is a complex but still insufficiently researched field in academic

circles (Iso-Ahola, 1982; Dann, 1977; Crompton, 1979; Dann, 1981; Yoon & Uysal, 2005). Motivation in tourism implies the influence of internal reasons and factors that encourage people to travel (Devesa et al., 2010). The multidimensional nature of tourists' motivation to travel and stay in a particular destination is related to the fact that tourists very often have a desire to experience more than one attribute of the place they are staying in (Pyo et al., 1989; Filipović, 2018). Bearing in mind that destinations have different attributes, which are connected in a unique tourist offer, during one travel tourists can satisfy a large number of their travel motives, very often those that are not primary as well. Developing various theories on tourist motivation, authors have sought to identify key factors that drive tourists to travel. Changes in the needs and requirements of tourists indicate the need for continuous research of tourist motivation. Identifying the profiles of potential consumers can play a key role in formation the tourist offer of a particular destination (Tomić et al., 2020). Also, tourism represents one of the most important industries, which is characterized by the need for continuous diversification of products (Lakićević & Sagić, 2019). In addition to changes in the requirements of tourists, tourism development results in the improvement and enrichment of the destination tourist offer, which may cause the emergence of new motives for travel. The motivation of tourists for staying in cities is specific due to the multifunctional nature of the tourist offer of this type of destination. Given that urban tourism offer includes a variety of resources which are used to develop other forms of tourism in cities, this form of tourism can meet the needs of tourists of different socio-demographic characteristics and travel motives. The city as a tourist destination can also be viewed from the aspect of tourists' perception, as a result of which different cities can be seen in different ways by tourists (Podovac, 2019). A large number of authors have emphasized the importance of researching the motivation of tourists to stay in cities as well as the problems they face in their empirical studies (Jansen-Verbeke, 1986; Blank & Petkovich, 1987; Page, 1995; Dunne, 2009; Ashworth & Page, 2011). Analysing the previous theoretical knowledge about urban tourism, Ashworth and Page (2011) point out that research on the motivation of tourists to visit and stay in cities is associated with certain difficulties, which make it difficult to answer the questions: why do tourists visit cities and who are the city tourists?

Urban tourists differ from other types of tourists by place of residence and their motives for staying in the city. Tourists who visit cities very often come from non-urban areas and at the same time engage in very different activities in relation to the local population. In addition, the connection between the length of stay in the city and the motive for the visit is expressed. Tourists who come for sightseeing, tours of cultural and historical heritage sites, events, etc. will stay in the city longer. (Jansen-Verbeke, 1986). Tourists in cities can use a large number of attractions which are offered to them, and it is important for them to have a greater possibility of choice in terms of resources and attractions (Dunne, 2009). The structure of the tourist offer of cities as well as the interconnectedness of other forms of tourism, which are developing in cities with urban tourism, make it difficult to define a unique classification of tourists' motives for staying in cities. One of the first classifications was defined by Blank and Petković (1980), highlighting the following motives: visiting relatives and friends, business reasons, recreation, entertainment and

sightseeing, private reasons, shopping, and other reasons. A much more extensive classification was defined by Page (1995), emphasizing that the city's attractions are in the focus of tourists' interest: visits to relatives and friends, shopping, conferences and exhibitions, education, events, religious reasons, business reasons, day trips, and culture and heritage. Volume of tourist traffic in cities depends on the attractiveness of cultural and historical monuments, environments, events and other various contents which are concentrated in them (Demirović et al., 2018). Classifications of tourists' motives for staying in cities indicate the ability of this type of destination to meet the needs of different profiles of tourists. In addition, it is important to emphasize the economic importance of urban tourism because it ensures the influx of tourists throughout the year and the economic sustainability of the tourism industry. Dunne et al. (2007) investigated the motivation of tourists for city break travel to Dublin, where they identified escape, socialising, and self-esteem (gift giving) as key push motives for this type of travel. In this study, the authors came to the conclusion that pull factors, which are particularly important in the city break travel decisions, encompass: ease of access and availability of low-cost flights as well as the image of the city as a fun destination, and the hosting of events such as major sports events and concerts. Božić et al. (2017) examined the importance of pull factors for the city of Ljubljana (Slovenia) by ranking them from the most dominant to the least dominant motive. Cultural motives and nightlife stood out as the most common pull motives of tourists staying in Ljubljana, while business and religious motives were ranked the lowest. A similar research was conducted by Todorović and Jovičić (2016), researching the push and pull motives of youths for staying in Belgrade. In this study, the authors concluded that the main push factors are related to the desire of youths to have fun, visit interesting places, escape from everyday routine and feel the excitement. Within this study, it was found that the main pull factors such as contact with the local residents, sightseeing and visiting cultural attractions were rated higher than recreation and engagement in night life.

Analysing tourists' motives for staying in cities, which are cultural/heritage destinations, on the example of Guimarães (Portugal), Remoaldo et al. (2017) come to the conclusion that tourists stay in this type of cities mainly because of: touring, visiting cities in the region, architectural heritage and cultural activities. Another similar study was conducted by López-Guzmán et al. (2018) analysing the motivation, satisfaction and loyalty of tourists staying in the city of Cordoba (Spain). The authors identified the cultural motive as the key reason for tourists' stay in this city, while motives such as gastronomy and the search for pleasure were also expressed. Large number of tourists find motivation for visiting cities in the intangible cultural heritage (Sančanin et al., 2019). Researching the attractiveness of city break travel as a form of urban tourism, Balińska (2020) in her study, based on the research, finds that the main motives for staying in cities are: the desire to escape from everyday life routine, sightseeing and relaxation. Analysing the push and pull motives for staying of domestic and foreign tourists in Novi Sad out of the tourist season, Blešić et al. (2008) conclude that the main push motives are related to business meetings, cooperation and meeting new people and making new contacts, while seminar, congress, course, business, and city atmosphere are identified as the pull motives. The authors also conclude that there is a statistically significant difference between the domestic and foreign tourists' push motives such as meeting new culture and meeting new environment, i.e. for

pull motive arrangement price. In their study, Todorović and Jovičić (2016) conclude that nightlife as a motive for staying in Belgrade is more important for male tourists and that this motive was rated higher by respondents with high school.

## 2. Research of methodology

The questionnaire used for the survey consists of two segments. The first segment of the questionnaire contains questions about basic socio-demographic characteristics of the respondents (gender, age, level of education and origin). The second part of the questionnaire contains the questions which refer to the: length of stay, number of visits, manner of making a decision on the visit and travel organization. This part of the questionnaire also asked about the motive of the respondents' stay in Belgrade, which was defined by an analysis of available scientific literature with the same research subject (Page, 1995; Ashworth & Page, 2011; Todorović & Jovičić, 2016; Božić et al., 2017; Ramires et al., 2018; Tournois & Đeri, 2019; Vujičić et al., 2019). Based on theoretical analysis, 14 different motives for the respondents' stay in Belgrade were defined. This research was conducted in the period from January 2019 to June 2020. The questionnaire was distributed in several ways: by sending a questionnaire to the e-mail addresses of potential respondents, through personal contact, and by distributing the questionnaire by licensed tourist guides to tourists during organized tours of Belgrade. The survey questionnaire was compiled in Serbian and English. The research sample included 250 respondents. The collected data were processed in the statistical package SPSS 26 using certain statistical procedures and techniques: descriptive statistical analysis (frequency and percentages), measures of variability (arithmetic mean and standard deviation), t-test of independent samples, and one-factor analysis of variance (ANOVA). The objectives of the research include defining the socio-demographic profile of tourists staying in Belgrade as well as analysing the existence of statistically significant differences between the motives of tourists' stay in Belgrade depending on their socio-demographic characteristics.

## 3. Results and discussion

132 female respondents (52.8%) and 118 male respondents (47.2%) participated in this research. According to the age structure, the largest number of respondents in the sample were aged 36-45 (31.2%). Respondents who have completed master's and PhD studies represent a greater share in the sample (51.6%). By origin, the majority of respondents are people who live outside the borders of the Republic of Serbia (72.4%). The largest number of foreign respondents are from the following countries: the Republic of Croatia, Bosnia and Herzegovina, Greece, Romania, Macedonia, Italy, Slovenia, while a significantly smaller number of respondents are from other countries such as France, Russia, Poland, Bulgaria, China, etc. (Table 1).

Table 1: Socio-demographic characteristics of the respondents (n=250)

Variables	n	%	M	SD
<b>Gender</b>				
Male	118	47.2	1.53	.500
Female	132	52.8		
<b>Age</b>				
18-25	45	18.0	2.74	1.229
26-35	64	25.6		
36-45	78	31.2		
46-55	41	16.4		
56-65	18	7.2		
> 66	4	1.6		
<b>Level of education</b>				
Primary school	3	1.2	4.30	.932
High school graduate	19	7.6		
Vocational degree	7	2.8		
Bachelor's degree	92	36.8		
Master /PhD	129	51.6		
<b>Origin</b>				
Domestic tourists	69	27.6	1.72	.448
Foreign tourists	181	72.4		
<b>Total</b>	<b>250</b>	<b>100,0</b>		

*n*-number of respondents; %-percentage; *M*- arithmetic mean; *SD*-standard deviation

Source: Author's calculation based on SPSS 26.0

Table 2 shows the answers of the respondents to the questions related to the organizing of their travel and staying in Belgrade. When asked about the length of stay, 46.4% of the respondents stated that they were staying in Belgrade for 2-3 days, while the most represented respondents in the sample are the ones who had visited Belgrade 6 or more times (40.4%). The largest number of respondents made a decision to visit Belgrade based on previous experience (28.0%); via information from the Internet (27.2%) and based on the recommendations of relatives and/or friends (26.4%). The answers of the respondents who stated that Belgrade had been chosen as the destination of their travel by the institution which organized the conference they were attending, an institution/company, fair organizers or that the basis for staying in the city is an invitation to attend a certain event, are classified under option *Other*. When asked about the organization of the travel, 74.0% of the respondents stated that they had organized their travel completely independently. Respondents who are classified under the option *Other* stated that their travel had been organized by the company in which they were employed.

Table 2: Characteristics related to respondents' travel and stay in Belgrade (n=250)

Variables	n	%	M	SD
<b>Length of stay</b>				
Less than a day	7	2.8	3.61	1.279
One day	26	10.4		



2-3 days	116	46.4		
4-5 days	44	17.6		
6-7 days	22	8.8		
Longer than 7 days	35	14.0		
<b>Number of visits</b>				
Once	68	27.2	2.66	1.258
2-3 times	50	20.0		
4-5 times	31	12.4		
6 and more times	101	40.4		
<b>Decision to visit Belgrade</b>				
Based on the recommendation of relatives/friends	66	26.4	2.80	1.626
Over the Internet	68	27.2		
Through the offer of a travel agency	21	8.4		
Based on previous experience	70	28.0		
Through tourist information documentation	7	2.8		
Through the media	7	2.8		
Other	11	4.4		
<b>Organization of travel to Belgrade</b>				
Independently	185	74.0	1.44	.790
By a travel agency	24	9.6		
By the company in which respondents work	38	15.2		
Other	3	1.2		
<b>Total</b>	<b>250</b>	<b>100.0</b>		

*n* – number of respondents; % – percentage; *M* – arithmetic mean; *SD* – standard deviation  
 Source: the author's calculation based on SPSS 26.0

Table 3 shows the results of the statistical analysis of the respondents' motives for staying in Belgrade. Within the conducted research, 14 potential motives for staying in Belgrade were defined. When coding the data, the motives for the stay of respondents in Belgrade were coded (1= yes, 2= no). Respondents were given the opportunity to choose one motive which was the main reason for staying in Belgrade. The most represented respondents in the sample were those who stayed in Belgrade for: *business purposes* (21.2%), *scientific conferences* (15.2%), *sightseeing* (14.0%), *visiting relatives and/or friends* (13.6%) and *nightlife* (10.4%).

Table 3: The main respondents' motives for staying in Belgrade (n=250)

<b>Motives for staying in Belgrade</b>	<b>n</b>	<b>%</b>
Passive rest and relaxation	12	4.8
Nightlife	26	10.4
New experiences	19	7.6
Sport and recreation	6	2.4
Visiting relatives and/or friends	34	13.6
Attendance at cultural events	5	2.0
Attendance at sporting events	3	1.2
Shopping	5	2.0
Sightseeing	35	14.0

Scientific conferences	38	15.2
Business purposes	53	21.2
Visit to museums, galleries, theatres, etc.	8	3.2
Religious motives	2	.8
Tasting gastronomy and beverages	4	1.6
<b>Total</b>	<b>250</b>	<b>100,0</b>

*n* - number of respondents; % - percentage;  
Source: the author's calculation based on SPSS 26.0

### 3.1. Results of the t-test of by gender and origin of respondents

T-test of independent samples was used with aim to compare the values of the arithmetic mean of the answers between male and female respondents about the motives for staying in Belgrade. Out of a total of 14 motives, it has been found that there are statistically significant differences between respondents of different gender for one motive, which refers to *Sightseeing* at significance level  $p < 0.05$ . This motive was rates with higher average scores by male respondents ( $M = 1.91$ ) than by female respondents ( $M = 1.82$ ) (Table 4).

Table 4: T-test of independent samples according to the gender

Motives	Arithmetic mean		t-test
	Male (n=118)	Female (n=132)	
Passive rest and relaxation	1.92	1.98	.056
Nightlife	1.87	1.92	.264
New experiences	1.92	1.92	.988
Sport and recreation	1.96	1.99	.085
Visiting relatives and / or friends	1.90	1.83	.131
Attendance at cultural events	1.97	1.99	.154
Attendance at sporting events	1.98	1.99	.499
Shopping	1.97	1.98	.564
Sightseeing	1.91	1.82	.041*
Scientific conferences	1.82	1.87	.285
Business purposes	1.81	1.77	.534
Visit to museums, galleries, theatres, etc.	1.98	1.95	.192
Religious motives	1.99	1.99	.937
Tasting gastronomy and beverages	1.99	1.98	.372

\* $p < 0.05$

Source: the author's calculation based on SPSS 26.0

Applying the t-test of independent samples, the existence of statistically significant differences between respondents of different origin were determined for 4 out of the 14 analysed motives: *New experiences*; *Sport and recreation*; *Visiting relatives and/or friends* and *Scientific conferences*.

Table 5: T-test of independent samples according to the origin

Motives	Arithmetic mean		t-test
	Domestic tourists (n=68)	Foreign tourists (n=181)	
Passive rest and relaxation	1.97	1.94	.387
Nightlife	1.93	1.88	.272
New experiences	1.99	1.90	.002*
Sport and recreation	2.00	1.97	.014*
Visiting relatives and / or friends	1.68	1.93	.000*
Attendance at cultural events	1.94	1.99	.073
Attendance at sporting events	2.00	1.98	.083
Shopping	1.96	1.99	.215
Sightseeing	1.84	1.87	.587
Scientific conferences	1.93	1.82	.011*
Business purposes	1.81	1.78	.575
Visit to museums, galleries, theaters, etc.	1.97	1.97	.868
Religious motives	2.00	1.99	.383
Tasting gastronomy and beverages	1.99	1.98	.907

\*p<0.05

Source: the author's calculation based on SPSS 26.0

By analysing the obtained results of the t-test, it can be concluded that statistically significant differences are present for the stated motives of the stay of respondents in Belgrade at significance level  $p < 0.05$ . If we observe the average scores of the tourists' motives for staying in Belgrade according to their origin, higher average scores for the motives of *New experiences* (M=1.99); *Sport and recreation* (M=2.00) and *Scientific conferences* (M=1.93) were given by respondents from the territory of the Republic of Serbia. Respondents of foreign origin gave the highest average scores for the motive *Visiting relatives and/or friends* (M=1.93) (Table 5).

### 3.2. Results of one-factor analysis of variance (ANOVA)

One-factor analysis of variance (ANOVA) was applied with the aim to examine the existence of statistically significant differences between the motives for staying in Belgrade depending on socio-demographic characteristics of respondents (education and age), which are defined as independent variables. Dependent variables are the tourists' motives for staying in Belgrade. In addition to ANOVA, the Tukey post hoc test was used in order to determine among which groups do exist statistically significant differences in terms of analyzed variables.

Table 6: ANOVA according to education

Motives	Middle value					F	p
	group 1 (Primary school)	group 2 (High school graduate)	group 3 (Vocational degree)	group 4 (Bachelor's degree)	group 5 (Master /PhD)		
Passive rest and relaxation	2.00	2.00	1.86	1.97	1.94	.874	.480
Nightlife	1.67	2.00	1.86	1.85	1.92	1.836	.123
New experiences	2.00	1.84	1.86	1.95	1.92	.775	.542
Sport and recreation	2.00	2.00	1.86	1.95	2.00	2.967	.020*
Visiting relatives and/or friends	2.00	1.84	2.00	1.82	1.89	1.083	.365
Attendance at cultural events	2.00	1.95	1.86	1.99	1.98	1.767	.136
Attendance at sporting events	2.00	1.95	2.00	2.00	1.98	1.001	.408
Shopping	2.00	2.00	2.00	1.98	1.98	.166	.955
Sightseeing	2.00	1.79	2.00	1.79	1.91	2.066	.086
Scientific conferences	2.00	1.95	2.00	1.96	1.74	6.040	.000*
Business reasons	1.33	1.79	1.71	1.79	1.80	1.006	.405
Visit to museums, galleries, theaters, etc.	2.00	1.95	2.00	1.99	1.95	.692	.598
Religious motives	2.00	1.95	2.00	2.00	1.99	1.402	.234
Tasting gastronomy and beverages	2.00	2.00	2.00	1.98	1.98	.164	.957

\*. The mean difference is significant at the 0.05 level.

Source: the author's calculation based on SPSS 26.0

Applying ANOVA, it was found that there are statistically significant differences between respondents of different education for 2 out of 14 motives, namely *Sport and recreation* ( $F= 2,967$ ;  $p= .020$ ) and *Scientific conferences* ( $F= 6,040$ ;  $p= .000$ ) (Table 6). Although the existence of statistically significant differences were found, the difference between the mean values of the analysed groups was extremely small for the motive *Sport and recreation*. The results of the Tukey post hoc showed that there are statistically significant differences for the motive *Scientific conference* between the respondents who have bachelor's degrees and respondents with the highest level of education (Master/PhD)( $p=.000$ ).

Table 7: ANOVA according to age

Motives	Middle value						F	p
	group 1 (18-25)	group 2 (26-35)	group 3 (36-45)	group 4 (46-55)	group 5 (56-65)	group 6 (> 66)		
Passive rest and relaxation	1.93	1.95	1.96	1.93	2.00	2.00	.429	.828
Nightlife	1.91	1.77	1.94	1.95	2.00	2.00	3.563	.004*
New experiences	1.91	1.92	1.92	1.95	1.89	2.00	.233	.948
Sport and recreation	1.98	1.98	1.96	2.00	2.00	1.75	2.260	.049*
Visiting relatives and / or friends	1.67	1.86	1.94	1.90	1.94	2.00	4.357	.001*
Attendance at cultural events	2.00	1.97	1.96	2.00	2.00	2.00	.788	.559
Attendance at sporting events	1.98	2.00	1.97	2.00	2.00	2.00	.625	.681
Shopping	2.00	1.97	1.99	2.00	1.89	2.00	2.050	.072
Sightseeing	1.84	1.91	1.82	1.88	1.83	2.00	.614	.689
Scientific conferences	1.98	1.89	1.79	1.76	1.83	1.75	2.354	.041*
Business reasons	1.89	1.81	1.77	1.73	1.67	1.75	1.105	.358
Visit to museums, galleries, theaters, etc.	1.96	1.98	2.00	1.93	1.94	1.75	2.474	.033*
Religious motives	2.00	1.98	1.99	2.00	2.00	2.00	.308	.908
Tasting gastronomy and beverages	1.96	2.00	1.99	1.98	2.00	2.00	.782	.563

\*. The mean difference is significant at the 0.05 level.

Source: Source: the author's calculation based on SPSS 26.0

The results of ANOVA have showed that there are statistically significant differences for 5 out of 14 motives for staying in Belgrade between respondents of different age: *Nightlife* (F= 3.563; p= .004); *Sport and recreation* (F= 2.260; Sig= .049); *Visit to relatives and/or friends* (F= 4.357; p= .001); *Scientific conferences* (F= 2.354; p= .041) and *Visits to museums, galleries, theatres, etc.* (F= 2.474; p= .033) (Table 7). The results of Tukey post hoc test showed a statistically significant difference for the following groups of respondents:

- *Nightlife* - a statistically significant difference was found between: respondents aged 26-35 and 36-45 (p = .011); respondents aged 26-35 and 46-55 years; (p= .025) and respondents aged 26-35 and 56-65 (p = .041).

- *Sport and recreation* - a statistically significant difference was found between: respondents aged 18-25 and 66 and older ( $p = .049$ ); respondents aged 46-55 and 66 and older ( $p = .022$ ) and respondents aged 56-65 and 66 and older ( $p = .036$ ).
- *Visit to relatives and/or friends* - a statistically significant difference was found between: respondents aged 18-25 and 26-35 ( $p = .037$ ); respondents aged 18-25 and 36-45 ( $p = .000$ ); respondents aged 18-25 and 46-55 ( $p = .015$ ) and respondents aged 18-25 and 46-55 ( $p = .035$ ).
- *Scientific conferences* - a statistically significant difference was found between respondents aged 18-25 and 46-55 ( $p = .047$ ).
- *Visit to museums, galleries, theatres, etc.* - The difference between the mean values for this motive is very small.

## Conclusion

The research subject of this paper is the motivation of tourists for staying in the City of Belgrade. Based on the theoretical analysis of previous scientific papers on this topic, an appropriate methodology has been defined and applied with the aim of drawing conclusions about the motives of tourists to stay in Belgrade and the existence of statistically significant differences between the motives of tourists depending on their socio-demographic characteristics. The results of the descriptive statistical analysis have confirmed that tourists stay in Belgrade due to various motives, among which the following stand out: *business reasons, scientific conferences, visits to relatives and/or friends, sightseeing* and *nightlife*. The results of this study showed statistically significant differences for a very small number of motives for tourists staying in Belgrade. When it comes to gender, there are statistically significant differences for the motive *Sightseeing* where male tourists rated this motive with a higher average score compared to female tourists. Depending on the origin of tourists, the following motives for staying in Belgrade were highlighted: *New experiences; Sport and recreation; Visiting relatives and/or friends*, and *Scientific conferences*. If we look at the average ratings of the motives of tourists' stay in Belgrade according to their origin, higher average ratings for the motives of *New experiences, Sports and recreation, and Scientific conferences* were given by respondents from the territory of the Republic of Serbia. Respondents of foreign origin gave the highest average score for the motive *Visiting relatives and/or friends*. The results of the research showed the existence of statistically significant differences between the respondents with a bachelor's degree and the respondents with the highest level of education (Master / PhD) for the motive of *Scientific conferences*. When it comes to age, it was determined that there are statistically significant differences for the motives *Nightlife, Sport and recreation, Visits to relatives and/or friends, Scientific conferences, and Visit to museums, galleries, theatres, etc.* mostly among tourists who belong to the category of younger tourists (18-25 and 26-35) and tourists who belong to the category of middle-aged and older (46-55, 56-65 and 66 and older). The results of this research have a scientific contribution, which is reflected in the theoretical analysis of other studies with the same subject of research, but also the application of theoretical knowledge in the preparation and realization of empirical research. Also there is a very small number of such studies on the tourists' motives for staying in Belgrade. The

practical contribution refers to the fact that the research results can be used in order to define guidelines to improve the urban tourism offer in Belgrade as well as to identify key segments of tourists visiting this city and focus on meeting their needs. The limitations of this research relate to giving tourists the opportunity to choose only one motive for which they most often stayed in Belgrade. In future research, the degree of significance of all motives for the stay of tourists in the capital of our country should be analysed. Future studies should also be extended to other cities in the Republic of Serbia, which have the potential to become recognizable urban tourism destinations (Novi Sad, Niš, and Kragujevac).

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# The relation between macroeconomic ambient and qualified healthcare workers: the case of the Republic of Serbia

Однос макроекономског амбијента и квалификованих радника у здравственој заштити: случај Републике Србије

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**Abstract:** Taking into account that the available capacities of human and material resources are key for a stable and sustainable health system of a country, this paper deals with the relation between the macroeconomic environment and the movement of the number of employees in the health system in the case of the Republic of Serbia. The aim of this paper is to make recommendations for further research based on the conducted analyses and to review the existing trends critically, in order to raise the level of public awareness in efforts to reduce the outflow of professional staff. The available official data of the institutions of the health system of the Republic of Serbia were used in the research, and time series from 2010 to 2018 were included.

**Keywords:** macroeconomic environment, capacities, healthcare personnel, regression analysis

**JEL classification:** J45, I15, H55

**Сажетак:** Узимајући у обзир да су расположиви капацитети људских и материјалних ресурса кључни за стабилан и одржив здравствени систем земље, овај рад се бави односом макроекономског окружења и кретањем броја запослених у здравственом систему у случају Републике Србије. Циљ овог рада је давање препорука за даља истраживања на основу спроведених анализа, али и критички осврт на постојеће трендове, како би се подигао ниво свести јавности у напорима да се смањи одлив стручног особља. У истраживању су коришћени доступни званични подаци институција здравственог система Републике Србије, а обухваћене су и временске серије од 2010. до 2018. године.

**Кључне речи:** макроекономско окружење, капацитети, здравствена заштита, регресиона анализа

**ЈЕЛ класификација:** J45, I15, H55

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## Introduction

Since the official creation of the Republic of Serbia, significant changes have occurred in the number of healthcare employees, while the number of healthcare facilities is almost unchanged. An analysis of these trends from an economic point of view would be to find the cause and effect of such trends in economic growth in the previous period. For this reason, we suggest that presenting the results of this type of research is essential for sustainable healthcare system in the long-term period of time.

Table 1: Healthcare system facilities over years (2010-2018)

Facilities	2010	2011	2012	2013	2014	2015	2016	2017	2018
Pharmacy	35	35	35	35	35	35	35	35	35
Primary Healthcare Centres	157	157	158	158	158	158	158	158	158
Institutes	22	22	25	24	25	25	25	22	22
General Hospitals	40	40	41	41	41	41	41	41	41
Special Hospitals	37	37	36	36	36	36	36	34	34
Clinical Hospital Centres	4	4	4	4	4	4	4	4	4
Clinical Centres	4	4	4	4	4	4	4	4	4
Clinics	6	6	7	7	7	7	7	7	7
Institutes	16	16	16	16	16	16	16	16	16
Public Health Institutes	23	23	25	25	25	25	25	25	25
Military Healthcare Institutions	0	0	4	4	4	4	4	4	4
Total	344	344	355	354	355	355	355	350	350

Source: Institute of Public Health of Serbia 'Dr Milan Jovanović Batut'

As we can see in Table 1, the number of healthcare facilities has remained almost untouched in the last decade. The reason is that these objects were not demolished and rebuilt, but the essence is in the different way of registering them, and therefore keeping their records. For example, in 2012, there were structural changes to the Military Social Security Fund, and some of these facilities were registered both as state and military health care institutions.

Popović et al. (2015) found that healthcare jobs are performed by appropriate healthcare professionals. The main pillar around which a healthcare service is built is the profession of a Doctor, but the efficiency of the healthcare service and the results of the work of healthcare facilities depend on all healthcare staff. A team of healthcare professionals with diverse backgrounds, skills and experience is the most effective instrument in the healthcare of individuals and the general population.

Healthcare professionals represent the most important component in the healthcare system. Therefore, one of the most significant problems today is the use of health professionals to make healthcare as economical, accessible and effective as possible. Personnel policy and healthcare planning is designed to provide the right type of education to the right number and category of healthcare personnel (Timotić, 2004).

Stiglitz (2013) believes that in many small communities, there are not so many doctors left to choose from. Associating doctors with healthcare organizations can, in fact, significantly

reduce competition in these areas. Moreover, competition among hospitals is also limited. In smaller environments, there are only a few. In an emergency, the individual is rarely able to make the choice, and even if given the opportunity, the choice is not really made by a patient but by the doctor.

Table 2: Trends of qualified healthcare employees (2010-2018)

Category	2010	2011	2012	2013	2014	2015	2016	2017	2018
Doctors	21,054	21,030	20,960	21,098	20,645	20,450	20,054	20,008	19,984
Dentists	2,242	2,227	2,160	2,099	2,005	1,901	1,688	1,634	1,607
Pharmacists	2,036	2,130	2,163	2,188	2,186	2,103	1,981	1,754	1,653
Other <sup>1</sup>	1,647	1,672	1,684	1,713	1,671	1,604	1,624	1,583	1,572
Nurses	86,887	86,325	85,620	85,104	82,730	81,922	78,660	76,874	76,682
Summary	113,866	113,384	112,587	112,202	109,237	107,980	104,007	101,853	101,498

Source: Institute of Public Health of Serbia 'Dr Milan Jovanović Batut'

Unlike facilities, the healthcare staff has undergone a dramatic change in both structural and quantitative terms. In the last ten years, virtually all categories in the healthcare system have experienced a decline in the number of employees, where the greatest difference is found among workers with secondary education (medical technicians – nurses). The number of this category was reduced by 10,000 workers compared to 2010, which is a huge problem in the quality of services provided. This problem is brought to light in regular daily life, and especially in situations of global health crises such as the current COVID-19 epidemic. The announcement of the pandemic of the new disease COVID-19 at the beginning of 2020 indicated the importance of the impact on economic events and trends, primarily through the possible occurrence of economic recession, which would be global and different from the previous ones due to the unusual factor that generates it (Prašćević, 2020). Most of the missing personnel find their future in the countries of Western (Germany, Austria) and Northern Europe (Sweden, Norway), where drastically higher personal income is provided.

The aim of the paper is to give recommendations for further research based on the conducted analyses, but also to consider the existing trends critically, which would raise the level of public awareness in efforts to reduce the outflow of competent staff. The available official data from the institutions of the healthcare system of the Republic of Serbia were used in the research, and the time series from 2010 to 2018 were included.

## 1. Literature preview

The new approach to macroeconomic ambient, and it especially refers to macroeconomic fluctuations as well as political impact to macroeconomic performances, concerns the policymakers and their decisions, which sometimes create recessions rather than fixing them (Jakšić & Prašćević, 2011).

<sup>1</sup> Associates with a university degree.

Healthcare plays an important role in economic development because it may help to ensure a healthy and productive labour force for the economy (Gupta, 2002). In the early stage of economic development, labour and capital are the main contributors to the amount of health care services provided. Based on this concept, indicators such as ratios of doctors and number of hospital beds per 1000 population are still used to measure the development of health services (Nghiem & Connelly, 2017).

Cerf (2018) suggests that governments worldwide should prioritize investment in healthcare system. The author states that increasing health investments boosts economic productivity. Likewise, respecting these principles make progress across all sustainable development goals.

Ercelik (2018) stated that, in the long-run, there is a positive relationship between GDP per capita, public and private spending for health and investment. Moreover, it is considered that investment and healthcare costs have significant impact on GDP. Accordingly, healthcare system's expenditure in Turkey, during the period of 1980 to 2015, affected GDP per capita in a positive way since the productivity of the country is improved.

On the other hand, depending on the specific objectives in the management and development of human resources, poor quality and inconsistency of data on human resources for healthcare system can give unrealistic, incomplete insight and represent a significant obstacle to the effective and economical planning and management of the entire human capital of the country (Šantrić-Milićević & Simić, 2009). Budget deficits are increasingly noticeable in a number of countries, and Serbia has been struggling with it for years, with it becoming quite tense in the last year. Most countries, including Serbia, have shown a decreasing desire to invest in public hospitals and in healthcare system in general (Zekić & Šegrt, 2015).

The function of financing the healthcare system has a decisive influence on the form of organization of the healthcare system, that is, more precisely, the way of payment of health insurance as one of the parts of the source of health system income. In Serbia, the health insurance system is based on compulsory health insurance, as well as in all European countries, and especially countries that had socialist social arrangements and voluntary health insurance (Damnjanović et al., 2018).

Ghana is pursuing activities to achieve sustainable development of the healthcare system by 2030. In addition to the shortcomings of the empirical prognosis required by healthcare institutions to achieve these goals, labour shortages are also a major threat. For this reason, Asamani et al. (2018) modelled the required healthcare facilities in Ghana, and translated it into staffing needs year after year, based on established staffing standards, considering that only 68% of the needs for health care professionals are employed and available to provide medical services. The employment of unemployed and skilled health professionals is imperative.

Vladušić et al. (2020) studied the relationship between GDP and employment rates and examined their interdependence on the example of European Union countries. In this paper, they examined the correlation of GDP and employment as well as the statistical validity of the results. The results show positive trends in GDP growth and employment rates. A moderate positive correlation of the observed parameters was found, and the results are statistically significant.

The World Health Organization forecasts an increase in the number of healthcare workers from 65 to 80 million workers by 2030. However, if we look at middle-income countries, including the Republic of Serbia, it should be noted that in the coming period, this group of countries will face a shortage of healthcare workers, given that demand for them will soon exceed supply (Liu, 2016). This means that even if these countries are able to produce additional workers to meet the need threshold, they may not be able to employ and retain these workers without considerably higher economic growth, especially in the health sector (Scheffler et al., 2018).

## 2. Methodology

For the purposes of this research, the method of linear regression was used, which was used to model the variables in relation to the data used in the research. In this model, only one variable is presented as explanatory, while all others are dependent. On the example of the Republic of Serbia, in the period from 2010 to 2018, trends in the number of qualified health workers and trends in some of the macroeconomic parameters were observed.

Table 3: Research data

Yr	Real GDP growth (%)	GDP (mil. €)	Unemployment rate (%)	Average Personal Income (€)	Public Debt (% of GDP)	Healthcare qualified workers
2010	0.7	31,546	19.2	331.8	39.5	113,866
2011	2.0	35,432	23.0	372.5	42.8	113,384
2012	-0.7	33,679	23.9	366.1	52.9	112,587
2013	2.9	36,427	22.1	388.5	56.0	112,202
2014	-1.6	35,467	19.2	379.8	66.2	109,237
2015	1.8	35,716	17.7	367.9	70.0	107,980
2016	3.3	36,723	15.3	374.5	67.8	104,007
2017	2.0	39,183	13.5	383.9	57.9	101,853
2018	4.4	42,855	12.7	419.7	53.7	101,498

Source: National Bank of Serbia; Institute of Public Health of Serbia

The most common method of linear regression, which will be applied here as well, is the least squares method. By applying this method, the line of the observed data is adjusted to the sum of the squares of the calculated vertical deviation, thus removing the negative values. When the result is obtained in the calculation of the regression line within the observed data, the value that has the largest lag compared to the others is taken as an external point. However, such results may be a consequence of incorrectly entered data, as well as a cause of unfavorable regression line fitting. On the other hand, if a form of horizontal deviation appears, the reason is the influence of the recorded value on the slope of the regression line.

The linear regression method is based on the principle that the deviation of points from the regression line is represented as the smallest sum of squares (Todić, 1973). This relationship can be presented as

$$f(a, b) = \Sigma(y - a - bx_i)^2 = \min \quad (1)$$

what follows is

$$\frac{\delta f(ab)}{\delta a} = -2\Sigma(y - a - bx_i) = 0 \quad (2)$$

$$\frac{\delta f(ab)}{\delta b} = -2\Sigma(y_i - a - bx_i)X_i = 0 \quad (3)$$

or

$$\Sigma y_i = Na + b\Sigma x_i \quad (4)$$

$$\Sigma x_i y_i = a\Sigma x_i + b\Sigma x_i^2 \quad (5)$$

The method for calculating the unknown indicators is shown as follows

$$\bar{a} = \bar{y} - b\bar{x} \quad (6)$$

$$b = \frac{\Sigma x_i y_i - \bar{y}\Sigma x_i}{\Sigma x_i^2 - \bar{x}\Sigma x_i} \quad (7)$$

Provided that the center of the coordinate system is actually the center of the observed phenomenon, then the following applies

$$b = \frac{\Sigma(x_i - \bar{x})y_i}{\Sigma(x_i - \bar{x})^2} \quad (8)$$

on the basis of which the final form of the equation is reached

$$\bar{y}_i = a + bx_i \quad (9)$$



Representation of the residual residue on the Y axis and its consideration in relation to the reference value on the X axis can help to detect the possible occurrence of any form of nonlinear relationship. The data used in this research are official data of the National Bank of Serbia as well as the Institute of Public Health of Serbia "Dr Milan Jovanović Batut".

### 3. Results and discussion

The verification of the normality of the data was performed using the Shapiro-Wilk test, providing conditions for the realization of further research, i.e. providing conditions for a valid interpretation of the data. As all data values are significantly above the significance threshold, the assumption was adopted that the normality of the data is adequate.

Table 4: Shapiro-Wilk test

Variables	Shapiro-Wilk Coefficient	p-value
Real GDP growth	0.95944	0.79239
GDP	0.93386	0.51896
Unemployment rate	0.93801	0.56112
Average Personal Income	0.92477	0.43322
Public Debt	0.93712	0.55190
Healthcare qualified workers	0.87283	0.13182

Source: the authors' own research

Analysis of wastefulness of the so-called Scatterplot can be a useful tool in determining the strength of relationships between variables. If there appears to be no correlation between the proposed explanatory and dependent variables (i.e., the scattering does not show any upward or downward trends), fitting a linear regression model to the data is unlikely to provide a useful model. A very important piece of information, which we obtain within the test by means of linear regression methods, is the strength of the correlation of the examined data, expressed within the correlation coefficient, the value of which ranges from -1 to 1.

If we take that  $Y = a + bX$  is the basic form of the regression equation, then we should define that  $X$  is the number of healthcare workers in a given year, thus representing an explanatory variable, while  $Y$  represents the values of macroeconomic parameters in this case, i.e. the dependent variable. If we want to represent a regression line graphically, then it should be noted that  $b$  is an indicator of the slope of that line and that  $a$  is the value of the cross-section when  $X$  is equal to 0.

Table 5: Research results

	r	r <sup>2</sup>	Adj. r <sup>2</sup>	Std. Err. of Est.	t Stat	P-value
Real GDP growth	0.839	0.705	0.663	0.132	-4.091	0.004

GDP	0.928	0.861	0.841	0.000	6.604	0.000
Unemployment rate	0.646	0.417	0.334	0.001	-2.239	0.060
Average Personal Income	0.509	0.259	0.153	0.000	-1.565	0.161
Public Debt	0.839	0.705	0.663	0.132	-4.091	0.004

Source: Research of the authors

r – linear regression coefficient (estimated coefficient)

r<sup>2</sup> – determination coefficient

Adj. r<sup>2</sup> – less biased determination coefficient

Std. Err. of Est. – standard error of model estimation

P-value – testing the null hypothesis

t Stat – null hypothesis significance for predictor variable

Based on the Chaddock scale (Bacho et al., 2019; Telizhenko et al., 2019), an estimate of the linear correlation coefficient between variables in a specific case was performed. Thus, a noticeable positive correlation was established between the movement of the number of qualified health workers and real GDP growth, i.e. average personal income and public debt [ $0.5 < r < 0.7$ ]. In the next interval from 0.7 to 0.9, there is an indicator of the value of GDP and its relation to the explanatory variable. Finally, the strongest form of positive correlation (0.928) was observed in relation to the movement of the number of health workers and the unemployment rate in the observed period. It means that the mentioned decline in number of healthcare personnel leads to reduced unemployment rate, considering explained phenomenon called ‘brain drain’.

The r<sup>2</sup> points out that as much as 86.1% of the value of the unemployment rate is caused by the number of qualified healthcare workers, while the remaining 13.9% is a consequence of other indicators. Moreover, it should be noted that only GDP impacts the number of qualified healthcare workers significantly (70.5%), while in other observed parameters this value is negligible.

Within the adjusted r<sup>2</sup> coefficient, only the unemployment rate is presented as a parameter that will not increase with the growth of the number of explanatory variables. Therefore, it is only statistically significant, judging by the obtained value (0.841), unlike other parameters, which have no statistical significance. This is supported by the highest value of the determined standardized error in the case of GDP (0.132), at the same time as a negligible value of statistical significance. The same can be determined by observing the t values obtained in the research. There is a positive impact on all dependent variables, but only the values of GDP and unemployment rate are statistically significant, and for this reason, only these two parameters are taken into consideration.

P-value is the value for each term tests the null hypothesis that the coefficient is equal to zero, which means that there is no effect of explanatory to the dependent variable. If the p-value is above 0.05 the null could be accepted, while statistically significant regressors are confirmed in the case when  $p < 0.05$ . Accordingly, the null hypothesis can be rejected when it comes to GDP and the unemployment rate.

## Conclusion

Regarding the results of previous researches, on a similar topic, the significance of the interdependence of the number of healthcare personnel and macroeconomic indicators have been proven, on the example of the Republic of Serbia. A strong correlation was established between the values of the unemployment rate coefficient and GDP in relation to the number of healthcare workers in the period from 2010 to 2018.

The obtained results create the conditions for us to draw a conclusion about the mutual influence of the number of healthcare workers and certain macroeconomic parameters, in the case of the Republic of Serbia. They tell us that the macroeconomic environment that has been created and shaped in the past decade greatly influences the movement of the number of healthcare workers in the healthcare system of the Republic of Serbia. On the other hand, a strong and stable healthcare system with minimal fluctuations in the number of employees is one in a series of preconditions for creating a favorable and efficient national economy of a country. These results should encourage macroeconomic policy makers to prevent 'brain drain' that is, a continuing deficit in the number of workers in the healthcare system.

As the authors of this paper, we propose that future research on this topic be directed towards examining the impact of the efficiency of certain categories of healthcare workers on sustainable economic development, after which the examined results of specific samples would be compared with the same indicators of developed and developing countries. Taking into consideration numerous examples of overstrain and difficulties in the functioning of healthcare systems, including the Republic of Serbia, during the current COVID-19 pandemic, their problem should be concretized, and guidelines for planning and stabilization of a country's healthcare system, supporting civil society even in unforeseen situations.

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# Effectiveness of bail-out mechanisms in the Eurozone: global vs. pandemic crisis<sup>1</sup>

Ефективност „bail-out“ механизма у Еврозони:  
глобална vs. пандемијска криза

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**Abstract:** This paper analyses the effectiveness of bail-out mechanisms after the global crisis in comparison to Covid-19 pandemic crisis in the selected Eurozone economies. It seems that in the circumstances of global instability, laissez-faire rules in economy are not enough, meaning that government interventions are desirable and unavoidable. In the Eurozone, the implementation of bail-out programs is related with the problem of a new “impossible trinity” and no-bail out clause. However, the adopted clause on non-use of the bail-out mechanism has had to be ignored several times in the past, and those implementations of bail-outs are focus of this paper. The research is based on descriptive statistical analysis and fixed panel model specification using available data in relation to the bail-out programs in the period 2011-2020 in selected Eurozone economies. The research shows that governments appear to have learned at least three lessons from the global crisis in relation to the bail-out mechanisms: (a) the need for quick implementation of emergency measures, (b) the bail-out mechanism was effective in reducing the fiscal deficit, however, caused an increase in the public debt, and (c) strengthening the fiscal framework of the Eurozone economies by defining supranational fiscal rules remains the essence of a stronger Eurozone and the European Union.

**Keywords:** bail-out, global crisis, pandemic crisis, Eurozone economies

**JEL classification:** G38, E44, H12, H60

**Сажетак:** Овај рад анализира ефективност механизма спасавања након глобалне кризе у поређењу са пандемијом Ковид-19 у економијама Еврозоне. Чини се да у околностима глобалне нестабилности laissez-faire правила у економији нису довољна, што значи да су интервенције влада пожељне и неизбежне. У Еврозони је примена програма спасавања повезана са проблемом новог „немогућег тројства“ и клаузуле о забрани коришћења bail-out механизма. Међутим, усвојена клаузула о некоришћењу bail-out механизма морала је у прошлости бити игнорисана неколико пута, а управо те имплементације програма спасавања представљају фокус овог рада. Истраживање се заснива на

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дескриптивној статистичкој анализи и на фиксној спецификацији модела панела базираној на доступним подацима у вези са програмима спасавања у периоду 2011-2020. одабраних економија Еврозоне. Истраживање показује да су владе научиле најмање три лекције из глобалне кризе, а поводом програма спасавања: (а) потреба за брзом применом хитних мера, (б) механизам спасавања био је ефикасан у смањењу фискалног дефицита, међутим, утицао је на раст јавног дуга и (ц) јачање фискалног оквира економија Еврозоне дефинисањем наднационалних фискалних правила остају суштина снажније Еврозоне и Европске уније.

**Кључне речи:** Bail-out, глобална криза, пандемијска криза, економије Еврозоне  
**ЈЕЛ класификација:** G38, E44, H12, H60

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## Introduction

This paper analyses the effectiveness of bail-out mechanisms after the global crisis in comparison to Covid-19 pandemic crisis in the selected Eurozone economies. It seems that in the circumstances of global instability, laissez-faire rules in economy are not enough, meaning that government interventions are desirable and unavoidable. A bail-out is one of the government mechanisms with the aim to provide financial help and to protect financial system of a country (or corporation) which otherwise would be on the brink of failure or bankruptcy. In the Eurozone, the implementation of bail-out programs is not related only to the costs and consequences of bail-out programs, but also to “impossible trinity”. Namely, the “new impossible trinity” is related to fiscal sovereignty, monetary union (independent monetary policy) and no-bail-out clause, meaning difficulties for the Eurozone decision-makers to implement bail-out programs. However, the adopted clause on non-use of the bail-out mechanism has had to be ignored several times in the past. The subject of this research is the success of implemented bail-out programs, primarily in the period after the global financial and debt crisis, and thereafter, the benefits of activating the bail-out mechanism as a cure for the pandemic crisis are examined. The research is based on descriptive statistical analysis using available data in relation to bail-out programs in the period 2011-2020 and on panel data model for implemented bail-out programs in the period 2011-2019 in the selected Eurozone economies.

The effectiveness of the bail-out mechanism is reflected in the results achieved in the countries that responded to the crisis of 2008 with aid packages, both from national budgets and European Union (EU) funds. Those countries are the PIGS countries (Portugal, Ireland, Greece, Spain) plus Cyprus, which had different initial conditions and space for government intervention, but what they have in common is the need for a bail-out mechanism. Bail-out programs involved sacrifices and painful reforms, which forced states to give up their long-standing ideals, more precisely, welfare states. The crisis caused by the Covid-19 pandemic is very different from previous crises. Economies are faced with a non-economic shock which soon generated a combination of economic shocks on both the supply and demand sides. The simultaneity gives strength and severity to the pandemic crisis. In the current inclinations, economic policy makers are forced to intervene more than ever before. Such circumstances lead to additional government borrowing, i.e. an increase in the public debt, which directly leads to an increase in risk, especially in over-indebted countries.



Taking into account genesis and effects of global and pandemic crisis, the goal of this paper is twofold: (1) to analyse the diversity of bail-out programs implemented in global vs. pandemic crisis; (2) to analyse the effectiveness of bail-out mechanisms after the global crisis using panel models in comparison to Covid-19 pandemic crisis in selected Eurozone economies. Main hypothesis could be summarized as follows. H1: the bail-out mechanisms have negative influence on the fiscal deficit (fiscal deficit decreases) and positive on public debt (public debt increases). H2: policymakers of the Eurozone have learned some lessons from the global crisis and applied them in a pandemic crisis.

The remainder of the paper is organized as follows. After the introduction, Section 1 reviews existing evidence in the literature in relation to bail-out mechanisms. Section 2 discusses the nature of the emergence of the global financial crisis vs. the crisis caused by the pandemic. Section 3 analyses the effectiveness of the application of the bail-out mechanism primarily after the global crisis using panel model with fixed effects, thereafter the aid packages extorted by Covid-19. Concluding remarks are pointed out in the last section.

## 1. Literature review

Causes and effects of the global crisis have been issues of vigorous debate in the world, and particularly in EU economies. A number of comparative empirical approaches were used in trying to explain global crisis and ways to save the economy. The effects of the global financial crisis on the EU are analysed by Ullah and Parvez Ahmed (2014), emphasizing the strength of the spill-over effects on the financial market. Helleiner (2011) explains that the EU reaction – the withdrawal of European banks' loans from the financial market is an attempt to mitigate the consequences of the crisis. Schuknecht et al. (2011) also write about the attempt to mitigate the consequences, and they see EU fiscal federalism as a potential solution to future crises. In relation to Covid-19 crisis, exogenous health shock is defined as the source of the crisis (Didier et al. 2020). Therefore, Wilkes (2020) studied the impact of exogenous shock on the global recession, that is, it examines its severity and makes an assumption about the form of the recession. Also, Guillen (2020) is of the opinion that the form of recession cannot be predicted with accuracy, but that it is certain that the recovery will not be fast, and that economies will have to invest a lot of effort to return economic activity to the previous level. In relation to negative exogenous shocks, Beker Pucar (2020) explains that external adjustment can take place through changes in aggregate expenditure (expenditure-reducing mechanism) or changes in its composition (expenditure-switching mechanism).

Focus in this paper is related to bail-out mechanisms used in global, and later in pandemic crisis, which is in relation to the question of new “impossible trinity” in the Eurozone. Primarily, Beck and Prinz (2012) write about the reasons why it is impossible to maintain an independent monetary policy, a sovereign fiscal policy and a clause on non-using the bail-out mechanism at the same time. The first element refers to fiscal sovereignty, i.e. the possibility for each EU member state at the national level to choose the level of public debt and fiscal deficit in relation to GDP, without any interference and

restrictive policies of other EU member states. The second element is an independent monetary policy that has been transferred to the supranational level, with the establishment of the supranational central bank of the ECB and the establishment of a monetary union (EMU). The focus of EMU is to achieve price stability, and financing public debt by printing money is completely prohibited. The third element is a bail-out agreement. The no-bail-out clause ensures that the public debt of one member state cannot be financed by other EU members that are in a better position, i.e. there is no obligation to save countries that pursue bad fiscal policies. The “impossible trinity” is especially pronounced in crisis situations when there is a large increase in fiscal deficits and indebtedness.

Moreover, this paper deals with the literature that studies the efficiency of the bail-out mechanism in global and pandemic crisis. Although all Eurozone countries were affected by the global crisis, the most exposed countries were the Eurozone periphery countries (PIGS). Therefore, resolving the public debt problem of Greece was raised on a supranational level using bail-out mechanisms (Kickert & Ongaro, 2019). Schuknecht et al. (2011) write about the justification of using the bail-out mechanism in the PIGS countries, as a solution for unbridled public finances and growing public debt. More about bail-out programs used in Greece is written by Pagoulatos (2019). This paper discusses the effects of implemented bail-out mechanisms and the belt tightening policy that was implied through the implementation of the program. Gurnani (2016) writes about the economic and financial situation in which Portugal found itself, as well as the process of applying the bail-out mechanism, emphasizing the efficiency of the program used. McDonagh (2017) in his paper analyses the causes that led to the escalation of the fiscal deficit which spilled over into the growth of public debt in Ireland. Bagus et al. (2016) investigate state response in the form of a bail-out mechanism in Spain, using a partial bail-out program whose funds were exclusively directed to the banking sector. The authors conclude that the effectiveness of the program used in Spain is questionable. Iordanidou and Samaras (2014) provide insight into the development of the crisis in Cyprus, as well as the necessity to accept the bail-out mechanism.

In relation to the literature dealing with measures to help against the current pandemic crisis, Batini et al. (2020) argue concerning rapid and joint EU reaction in the need to unite and overcome the crisis as painlessly as possible. Glavaški and Beker Pucar (2020) also emphasize the importance of strengthening the fiscal framework, stimulating the coordination between national and supranational fiscal arrangements. Acharya et al. (2020) stress the importance of the banking system for overcoming the crisis caused by the Covid-19 pandemic. The authors point out the lesson learned from the global financial crisis. This paper fills the gap in the literature by comparing bail-out mechanisms from both crises, as well as by modelling the effects of specific bail-out programs after outburst of the global crisis.

## **2. Genesis of global vs. pandemic crisis**

The problem of new “impossible trinity” has escalated in Eurozone economic during the crisis – global and pandemic crisis. The global financial crisis of 2007-2008 took place in

several stages. The collapse was preceded by massive growth of mortgage loans in the United States, which created a financial bubble, and then the dizzying fall in real estate prices led to the bursting of the financial bubble. Consequently, there was a collapse, the market became oversaturated with securities without any cover. Securities with a high credit rating were no longer collectible. Obviously, that was where the problem arose. Banks, and thus the market, were no longer liquid. There was a collapse of the whole financial market. As economies are more connected than ever, the problem of the collapse of the financial market in the United States has become the problem of all economies at lightning speed. The domino effect and panic according to Ullah and Parvez Ahmed (2014), was felt around the world in the markets - bonds, stocks, loans. However, the repercussions of the crisis were far greater than that. Although it all started with the collapse of hedge funds, and then the largest investment banks, the crisis soon spread to the real sector. With the desire to get out of the crisis as safely as possible, according to Helleiner (2011), European banks withdrew loans from the international financial market. According to this move, the credit market almost dried up, which had a direct impact on the stagnation of imports and exports, and the prices of goods. The crisis circumstances had the strongest impact on the economies that were vulnerable even before the crisis, i.e. unstable public finances. Those are economies that have not been able to control the fiscal deficit and that have resulted in accumulated public debt.

According to Glavaški and Beker Pucar (2020), the global recession has highlighted all the shortcomings of the unfinished EU project. Hence, how did those circumstances affect the Eurozone? According to Schuknecht et al. (2011), the Eurozone has provided a range of measures in response to the financial and economic crisis, which have sought to mitigate the consequences and support economic activity. The measures were implemented through the European Economic Recovery Plan (ERP) under the auspices of the European Commission. However, the recovery did not go in the desired direction. There was an increase in the average fiscal deficit by more than 5% of GDP, while public debt averaged almost 85% of GDP, which is more than 20% of pre-crisis levels, and more than 25% of allowed level of public debt relative to GDP. An extremely worrying fact was that, in PIGS EU countries, public debt exceeded 100% of GDP. The PIGS countries simultaneously faced an unprecedented crisis, while their access to the international financial market was denied. That meant only one thing. The non-use of bail-out clause had had to be abandoned in order to provide much-needed financial assistance to the EU members. The PIGS had different initial conditions and space for government intervention, which would mean that the range of the mechanism was different, as well as the type and time period of its use. Applying a bail-out mechanism was the alluring option, however it involved sacrifices and painful reforms, which forced states to give up their long-standing ideals, more precisely welfare states.

The crisis caused by the Covid-19 pandemic is very different from previous crises. Economies have been faced with non-economic shock which soon has generated a combination of economic shocks on both the supply and demand sides. The simultaneity gives strength and severity to the pandemic crisis. Primarily, it is crucial to understand the impact of the rate of virus spread on macroeconomics. At the very beginning of the crisis,

due to the nature of the occurrence, i.e. exogenous shock, as Wilkes (2020) explains, many economists and politicians shared an optimistic attitude. They predicted that the crisis would have a "V" shape, and that there would be a steep decline in economic activity, which would be short-lived, and an even faster return to the pre-crisis level.

Now, just over a year after the crisis began, many researchers and economists no longer share that optimism (Guillen, 2020), moreover, the expectations are more than worrying. In relation to the further course of the crisis, and the necessity of a "lockdown", according to Didier et al. (2020), the crisis could have an "L" shape. Such scenario will happen if there are mass layoffs with the simultaneous abolition of certain jobs. The problem arises if a laid-off worker remains structurally unemployed, due to the inability to adapt quickly to market needs. Therefore, it is necessary to preserve as much as possible both the connections between economic entities and the connections between the employer and the worker, to prevent further productivity decline of market actors. In the current inclinations, economic policy makers are forced to intervene more than ever before. Macroeconomic challenges are undoubtedly great, and combined with financial needs, the crisis has been heated up. Assistance packages are key factor in maintaining links between businesses. It seems that now almost all market players are "too big to fail", because in the current circumstances it is extremely difficult to compensate for the lost market player, especially because of the sustainability/survival of economies after the exit from the pandemic crisis.

When it comes to the Covid-19 pandemic, most things are still unknown. What is certain is that changes are taking place in economic activity itself. As Didier et al. (2020) assume, the pandemic will have long-term consequences on the nature of economic activity, which would mean expansion for some sectors on the one hand, or complete collapse for others. At the same time, changes are taking place on the demand side, as consumers have had very quickly adapted their recent habits to the new circumstances. Moreover, the changes did not bypass investments either. Such circumstances lead to additional government borrowing, i.e. an increase in public debt, which directly leads to an increase in risk, especially in over-indebted countries. That is also indicated by the fact that countries are facing a drastic increase in costs on the capital market and sudden cessation of capital inflows. Intervention at the supranational level may be of particular importance to developing countries as it would avoid pro-cyclicality of measures and prevent an even deeper recession. The speed of national governments' response is crucial, as it significantly reduces the gap between the adoption of measures and their implementation once the problem has been identified.

### **3. Empirical analysis of bail-out mechanisms**

#### **3.1. Global crisis**

Adverse circumstances on the world economic scene caused by the global financial crisis have confronted the PIGS countries with uncontrolled growth of public debt. The inability to curb public finances was also a consequence of rising costs in servicing debts, which has led to either leaving EMU or negotiating bail-out programs. The option of abandoning the

euro would mean a return to weak national currencies, which would further open space for shackles that would deepen the already existing problem. Consequently, there are justifiable reasons why Eurozone countries have chosen to accept aid packages (Schuknecht et al. 2011). In order to enable the realization of risk sharing among EMU members, funds were established from which bail-out programs were financed. The financial support provided by the European Financial Stability Facility (EFSF) is provided by joint national guarantees in proportion to the capital participation of the European Central Bank (ECB) (Mongelli, 2013). The European Stability Mechanism (ESM) is the second fund to finance the programs; it is defined by an international agreement between the members, established as a permanent international institution with various financial instruments at its disposal. This makes it the most capitalized financial institution in the world, with an effective credit capacity of EUR 700 billion. The implementation of the programs was monitored by the Troika, which consisted of the European Commission, the International Monetary Fund (IMF) and the ECB, while users were Greece, Ireland, Portugal, Spain, and Cyprus (Table 1).

*Table 1 Implemented bail-out programs after the global crisis*

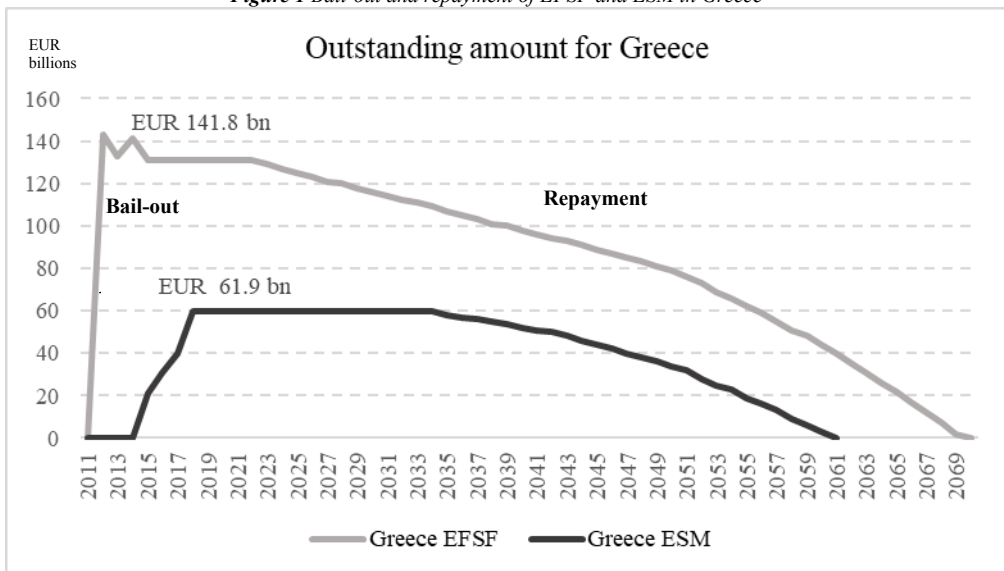
Country	Source of Financing	Duration	Amount	Deficit BEFORE	Deficit AFTER	Public Debt BEFORE	Public Debt AFTER
Greece	EFSF, EFSM, ESM, IMF	2011-2019	256 billion EUR	-15.1% of GDP, 2009	1.5% of GDP, 2019	142.8% of GDP, 2010	180.5% of GDP, 2019
Ireland	EFSF, EFSM	2010-2013	85 billion EUR	-32.1% of GDP, 2010	0.5% of GDP, 2019	96.2% of GDP, 2010	57.4% of GDP, 2019
Portugal	EFSF, EFSM, IMF	2011-2014	78 billion EUR	-11.2% of GDP, 2010	0.1% of GDP, 2019	93% of GDP, 2010	117,2% of GDP, 2019
Spain	ESM	2012-2013	41.3 billion EUR	-11% of GDP, 2009	-2.9% of GDP, 2019	60.1% of GDP, 2010	95.5% of GDP, 2019
Cyprus	ESM	2013-2016	628 billion EUR	-5.7% of GDP, 2009	1.5% of GDP, 2019	65.9 % of GDP, 2010	94% of GDP, 2019

*Source: The authors using database from Eurostat (2021) and Glavaški & Beker Pucar (2020).*

The public debt crisis that hit Greece in 2010 according to Kickert and Ongaro (2019) could not have been resolved nationally. Even before the outbreak of the crisis, Greece had a level of public debt that exceeded the allowed threshold of 60% of GDP (the Maastricht Treaty), therefore after the coup, it faced indebtedness that led to bankruptcy. The hopeless situation cried out for a foreign help. On the side of the helper, in addition to the IMF, there was also the ECB. Hence, in that way, the implementation of the first of a total of three bail-out programs in which Greece participated (in the period from 2011-2019) began. According to Pagoulatos (2019), the acceptance of first financial aid implied both harsh and strict fiscal measures. The policy of tightening the belt for the ultimate goal was the general growth of economic activity and the raising of the Greek economy. The implementation of the first bail-out program did not have the expected effects. Moreover, desired goals had not been achieved and the position of public finances was also aggravated

by the rapid growth of public debt. Such an outcome led Greece to participate in the second bail-out program, which did not differ much from the first, except in the part in which it implied the reconstruction of the public debt. However, its fate was very similar to the first bail-out; political instability and social tensions made it impossible to implement the program to the end. The third bail-out was far more successful than the previous two. The fiscal deficit has been brought under control, a post-crisis deficit (2009) of 15% of GDP converted into a surplus of 1.5% of GDP in 2019 (Table 1). However, there was a deterioration of public debt which continued the growth trend (from 142.8% of GDP in 2010) and reached as much as 180.5% of GDP (in 2019). More precisely, Figure 1 shows the bail-out mechanism implemented in Greece which is funded both through EFSF and ESM. The most generous aid was provided from the EFSF of 141.8 billion, with the longest repayment term, until 2070, while the ESM repayment is planned by 2060. Figure 1 shows Greece's indebtedness according mentioned programs.

*Figure 1 Bail-out and repayment of EFSF and ESM in Greece*

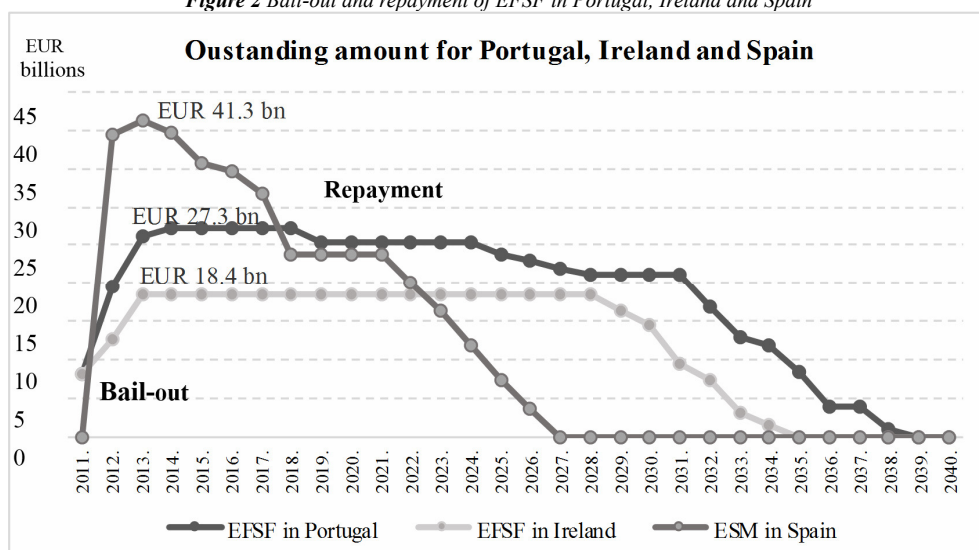


*Source: The authors, using ESM data (<https://www.esm.europa.eu/assistance/programme-database>).*

The collapse of the world financial market spilled over to Ireland in a flash, which is partly a consequence of the non-existence of a single banking system within the Eurozone. To address the illiquidity and even insolvency of banks, the Irish government has offered limited guarantees on all bank deposits and old debts. The Irish government in its stabilization of the economy and finances was guided by a philosophy of “essential importance”, instead “too big to fail” (McDonagh, 2017) which soon led first to fiscal deficit escalation, then of the enormous growth of public debt. The funds needed to recruit on the front line exceeded the national government's capacity. Due to that Ireland agreed to a bail-out program (the second largest, amounting to € 85 billion), which took place in nine episodes of adjustment in the period 2010-2013. According to Kickert and Ongaro (2019),

the program contributed to the stabilization of public finances, which can be seen in the reduction of the enormous deficit from 2010, which amounted to 32.1% of GDP, to 0.5% of GDP in 2019. Also, unlike other countries participating in the bail-out program, Ireland did not have negative consequences for the public debt, which was successfully reduced from 96.2% of GDP in 2010 to 57.4% of GDP in 2019 (Table 1). Figure 2 shows the repayment plan for Ireland, Portugal and Spain. Also, it can be seen from the figure that Spain has the shortest deadline, until 2027, for when it is foreseen that the debt will be settled. The deadline for Ireland is until 2035, while for Portugal is until 2040.

Figure 2 Bail-out and repayment of EFSF in Portugal, Ireland and Spain



Source: The authors, using ESM data (<https://www.esm.europa.eu/assistance/programme-database>).

Like Greece, Portugal faced a bad economic and financial situation. Affected like that, it turned to the IMF for help. Portugal entered the bail-out process in 2011 and ran it until 2014. The volume of financial assistance provided to Portugal is almost four times less than the funds provided to Greece (EUR 78 billion). The program consisted of fiscal consolidation, fiscal stability, and structural transformation (Gurnani, 2016). In the short term, the problem of the fiscal deficit was successfully remedied, it was reduced from 9.2% of GDP (2010) to 3% of GDP (2013), and in 2019, Portugal created a surplus of 0.1% of GDP (Table 1). In the short term, the negative consequences of the adjustment were suffered. However, in the long run, bankruptcy has been prevented in the first place, which has improved the credibility and reputation that are extremely important for operating in the capital market. Significant structural reforms have made it possible to improve the macroeconomic picture, competitiveness and economic performance. However, as with Greece, the bail-out mechanism left negative consequences on public debt, which grew from 93% of GDP in 2010 to 117.2% of GDP in 2019 (Table 1).

The problems of the Spanish economy were mainly a consequence of the crisis in the real estate market. The crisis caused instability in the banking sector, combined with the decline in economic activity, decline in government revenues, with also significant consequences in public finances. At a moment when public debt had risen to 100% of GDP, it was clear that the Spanish government could not cope with the crisis on its own, and it sought help from the EU and the ECB. Unlike other countries, Spain applied a partial bail-out program, which involved financial injections only for the banking system. It participated in the program for one year from 2012-2013, and received assistance of EUR 41.3 billion in that period. The success of the bail-out mechanism according to Bagus, Raillo & Neira (2016) is questionable. However, the fiscal deficit has been successfully brought within the allowed limits, from 11% of GDP (2009) to 2.9% of GDP (2019). Table 1 shows that the impact on public debt is similar to that of Greece and Portugal, the implementation of aid packages has led to an increase in public debt instead of its reduction, from 20.1% of GDP (2010) to as much as 95.5% of GDP (2019).

According to Iordanidou & Samaras (2014), the debt crisis that Cyprus experienced was one of the most complex crises within the Eurozone. Several factors are the main culprits for the escalation of the crisis, the first one was the credit boom – generous lending to households and the economy. The second factor that was the trigger is the acceptance of the euro as the official currency and the entry into the EMU, and finally, the third factor that was also a source of the global financial crisis was the bubble in the real estate market. The crisis in Cyprus took place in three phases. In the first phase the overflowing effects of the global financial crisis were immediately felt in Cyprus, considering the indebtedness of the population and the economy, and the connection of the financial market of Cyprus with the world financial market. In a circular phase, in the period from 2008-2011, Cyprus was denied access to the international capital market. In the third phase, due to the bad assessment of the country's credit rating, Cyprus had no choice but to negotiate a bail-out mechanism, which, as in previous countries, meant significant measures and cuts in addition to financial assistance. Hence, in absolute terms, Cyprus received 6.28 billion euros in financial assistance. With these funds, the fiscal deficit was successfully reduced from 5.7% of GDP in 2012, and in 2019 a budget surplus of 1.5% of GDP was recorded. However, as with other members except Ireland, the bail-out mechanism has affected public debt growth from 65.9% of GDP in 2012 to as much as 94% of GDP in 2019 (Table 1).

Although Table 1 shows the sources of finance, as well as the amount of bail-out (from the highest to the lowest amounts of program), the important part of the table is related to the effects of bail-out programs on fiscal deficit and public debt. From the empirical data, it could be concluded that activating the bail-out mechanism has a beneficial effect on reducing the budget deficit for all observed economies, however, has a negative impact on public debt for most of them (except Ireland). Correlation coefficient as well indicated negative relationship between bail-out and fiscal deficit (-0.2562) and positive between bail-out and public debt (0.6127). In order to check significance of this relationship, balanced panel data model for the five economies which have been used bail-out programs (Greece, Ireland, Portugal, Spain and Cyprus) in the period 2011-2019 has



been estimated. The choice of the model that best fits analysed data is determined by the sample and potential variability across the time and economies (time vs. individual effects).

Classical panel data models are Fixed Effects (FE) and Random Effects (RE) panel specifications, with individual and/or time effects. In order to find out whether significant variability in cross-section dimension (individual effects) and in time dimension (time effects) exists, we used Anova F-test and Welch F-test (Table 2). The results indicate that there is a significant difference between cross-section observations, which is not the confirmed for the time dimension (except in variable fiscal deficit). Therefore, specification should be with individual effects; however, the question is whether fixed or random specification.

**Table 2** Variability in cross-section and time dimensions

Variables	Variability testing in cross-section dimension				Variability testing in time dimension			
	Anova F-test		Welch F-test		Anova F-test		Welch F-test	
	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value
<b>Bailout</b>	11.89	0.000	3.65	0.024	0.568	0.786	0.667	0.898
<b>Fiscal deficit</b>	0.544	0.003	0.766	0.059	12.170	0.000	9.771	0.000
<b>Public debt</b>	61.44	0.000	146.4	0.000	0.132	0.997	0.113	0.998
<b>Interest</b>	5.716	0.001	8.255	0.001	2.172	0.536	2.892	0.036

*Source: The authors.*

We estimated two models, first, with fiscal deficit as dependent variable, and the second one with public debt as dependent variable, using both specifications, FE and RE. Initially, all potential explanatory variables were included in the model (bail-out, interest, public expenditure, public revenues, GDP *per capita*), and econometric procedure “from general to specific” is used to eliminate insignificant regressors. In order to decide between FE and RE specifications, we used Hausman test analysing whether the error is correlated with regressors. The results of Hausman test indicated that preferable specification is FE model with individual effects (Table 3).

**Table 3** Bail-out effects on fiscal deficit and public debt

Independent variables	Model 1 Dependent variable: <b>fiscal deficit</b> (share in GDP)				Model 2 Dependent variable: <b>public debt</b> (share in GDP)			
	FE model		RE model		FE model		RE model	
	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value
Constant	6.581	0.000	3.777	0.030	93.60	0.000	60.031	0.000
Bail-out	<b>-5.21</b>	<b>0.001</b>	-2.60	0.061	<b>2.39</b>	<b>0.037</b>	3.77	0.000
Interest	2.913	0.000	2.214	0.000	6.818	0.004	14.742	0.000
R <sup>2</sup>	0.579		0.5651		0.204		0.19	
F test	26.22	0.000	27.55	0.000	4.88	0.013	7.22	0.002
JB test	9.330	0.009	2.171	0.33	32.09	0.000	2.839	0.241
Hausman test	15.46	0.004			11.07	0.009		

*Note: FE and RE specifications contain individual effects, and no time effects. Source: Authors' estimations.*

The results (Table 3, Model 1) showed that variables related to bail-out mechanisms and interest were the most important in explaining fiscal deficit (only significant variables are presented in the model). Variable bail-out is significant with

expected sign in explaining fiscal deficit (-5.21): a growth of bail-out programs decreases fiscal deficit. The model showed that growth of public debt servicing, namely interest payments, indicated fiscal deficit deterioration (2.913). On the other hand, the results of Model 2 (Table 3) showed that bail-out is significant in determining public debt, namely, that growth of bail-out programs increases public debt (2.39). Interest as well determine public debt significantly, with positive sign.

According to the estimated models, we could confirm the analysed hypothesis, namely, the bail-out mechanisms have negative influence on the fiscal deficit (fiscal deficit decreases) and positive on public debt (public debt increases). By using the bail-out mechanism, fiscal positions of the economies are sustainable in relation to flow variable, while, the value of the stock variable, public debt, is deepening.

### **3.2. Pandemic crisis**

The impact of the Covid-19 crisis, according to the European Commission's report, highlighted inequalities between EU members. Depending on the size of the economy and the preparedness of public finances, the state of the health care systems, as well as the dependence of economies on the currently most endangered sectors (tourism, catering), the gravity of the situation facing countries is reflected. Within the EU, a rapid and strong joint response to the Covid-19 crisis followed. According to Batini, Lamperti & Roventini (2020), the European Commission has provided almost 4% of GDP (EU-wide), amounting to EUR 540 billion to support crisis-affected economies. The aid package is divided into three segments: (i) the first aid package relates to health system support, and includes all health-oriented expenditures, and their funding is provided through the European Stability Mechanism (ESM); total availability of EUR 240 billion (which is half of the funds provided); (ii) a second aid package was earmarked to support companies, with a special focus on small and medium-sized enterprises (SMEs), under which EUR 25 billion was allocated through bank guarantees - to provide additional loans to companies worth EUR 200 billion; (iii) the latest aid package is aimed at combating unemployment, providing funds to protect workers and their jobs, with EUR 100 billion provided by guarantees from EU members.

The EU has taken another move in a bid to meet shaky economies. Instructed by the experience after the global financial crisis, as stated in the European Commission Report, The EU has decided to activate a general escape clause related to EU fiscal rules, allowing fiscal deficits exceeding the threshold of 3% of GDP. By establishing Next Generation EU funds, the EU has shown solidarity and a desire to overcome adversity together, and along with the implementation of the Recovery and Resilience Fund (RRF) can emerge from the crisis not only as an economic winner, but also more stable ties within the community. According to the Report of the European Commission, the RRF grant should finance public expenditures in the form of investments, which would not jeopardize the public debt. We used data on the applied aid packages for Greece, Portugal, Spain and Ireland Stabilization Programme 2020 for each country, which was written at the level of nation states, within

the Ministry of Finance. Detailed data about fiscal stimulus in 2020 in selected economies of the Eurozone are given in Table 4.

**Table 4** Fiscal response to the Pandemic crisis in 2020

Country	Immediate fiscal impulse <sup>a</sup>	Deferral <sup>b</sup>	Other guarantee <sup>c</sup>	Immediate fiscal impulse	Deferrals	Other guarantee measures
Greece	3.1%	1.2%	2.1%	€5.9 billion	€2.3 billion	€4 billion
Belgium	1.4%	4.8%	21.9%	€3.1 billion	€13 billion	€50 billion
France	5.1%	8.7%	14.2%	€124 billion	€210 billion	€342 billion
Netherlands	3.7%	7.9%	3.4%	€29.7 billion	€64 billion	€26.6 billion
Portugal	2.5%	11.1%	5.5%	€5.2 billion	€23.3 billion	€11.7 billion
Germany	8.3%	7.3%	24.3%	€284.4 billion	€251.0 billion	€832.1 billion
Italy	3.4%	13.2%	32.1%	€61.3 billion	€235.3 billion	€571 billion
Spain	4.3%	0.4%	12.2%	€53.8 billion	€5.3 billion	€ 151.2 billion

*Note:* <sup>a, b, c</sup> Fiscal response is represented as a share of GDP in 2019.

*Source:* <https://www.bruegel.org/publications/datasets/covid-national-dataset/#portugal>

National governments have been quick to respond to the Covid-19 crisis with fiscal measures to support their economies. The Greek stimulus through the change in fiscal policy primarily amounted to EUR 5.8 billion, and it refers to the increase of budget spending and non-collection of certain taxes. Greece has also decided to defer certain taxes (VAT) and contributions, thus relieving the economy of 2.3 billion euros. To help maintain the economy's liquidity through guarantees, Greece has set aside 2.1% of its 2019 GDP, which is 4 billion euros. The main beneficiaries of budget incentives, as stated in the Stabilization Plan of Greece, are companies in the private sector, employees, the self-employed and freelancers. Portugal borrowed a similar amount as Greece (EUR 5.2 billion) for an instant response to the crisis, helping companies as well as the population individually. For deferred payments, taxes and loans, Portugal set aside almost 10 times more than Greece (EUR 23.3 billion). As regards measures aimed at maintaining liquidity, EUR 11.7 billion has been raised. Spain's expansionist policy was more generous than the previous two members. The Spanish government has set aside 4.3% of GDP in 2019, representing EUR 53.8 billion in direct aid to the economy. EUR 5.3 billion was allocated for the moratorium on contributions, deferred tax debts, treatment of income tax and VAT. The largest funds (EUR 151.2 billion) were provided through guarantee schemes, which provide liquidity to the economy. Due to similar tax regulations (Tanasić, 2019), the Netherlands has decided to provide the greatest assistance to the economy through tax deferrals, by postponing the payment of corporate tax, personal income tax and value added tax (EUR 64 billion) for six months. Of all the countries observed, Belgium has both absolutely and relatively allocated the least funds for direct fiscal assistance to the economy (EUR 3.1 billion, i.e. 1.4% of GDP in 2019). However, the Belgian government guarantees EUR 50 billion (which is 21.9% of GDP in 2019) for new additional loans with a maximum repayment period of 12 months. The French government has also decided to help the economy through various types of guarantee schemes, and EUR 342 billion has been raised for them (which is 2.5 times less than what Germany has set aside). Assistance in the form

of deferred taxes, the credit moratorium amounts to EUR 210 billion, which is approximately the amount set aside by Germany for deferred payment of value added tax, corporate taxes, payroll taxes, income taxes and contributions (EUR 251 billion). Acharya et al. (2020) emphasize the importance of the banking system for overcoming the crisis caused by the Covid-19 pandemic. The authors point out the lesson learned from the financial crisis. After the express fiscal assistance, which is important in the short term, in the long run it will be necessary to have well capitalized banks since credits to both businesses and households will be essential. According to the analysis of bail-out programs in the pandemic crisis, we could conclude that policymakers of the Eurozone have learned some lessons from the global crisis and applied them in a pandemic crisis, namely, we could confirm the second hypothesis.

## Conclusions

Given that the nature of past and current crisis is undoubtedly different, it is clear that it is impossible to completely replicate the financial instruments used so far as remedies against the current decline in economic activity. However, having in mind experiences from the global crisis, research shows that governments appear to have learned at least three lessons from the global crisis. *First*, government fiscal support measures have been implemented early as the economies entered the pandemic crisis, while in the case of a global crisis, a longer period of time was required until activation of bail-out mechanisms. Central banks have been quick in implementation of emergency measures, providing lower interest rates, while governments have been quick in implementation of fiscal stimulus measures. Faster and stronger reactions of fiscal and monetary authorities are the key weapons in a fight with pandemic crisis. *Second*, hopes that pandemic crisis would have fast recovery has disappeared, due to the fact that exogenous shock of coronavirus would cause endogenous shock in relation to the government debt. Namely, the both crises were transformed into a sovereign debt crisis, and central banks supported liquidity and held interest rates at low levels. From the fixed effects panel model, it could be concluded that bail-out mechanism was effective in reducing fiscal deficit for all observed economies, however, with negative impact on public debt for most of economies. *Third*, in the light of “new impossible trinity”, no-bail-clause was abandoned in the case of global and pandemic crisis, although national fiscal sovereignty abandonment was the other solution. In both cases, strengthening the fiscal framework of the Eurozone economies by defining supranational fiscal rules remain the essence of a stronger Eurozone and the European Union.

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# The potential of digital entrepreneurship in Serbia

## Потенцијал дигиталног предузетништва у Србији

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**Abstract:** The development of digital technologies has fundamentally changed all segments of the functioning of human societies and ways of doing business in all activities. Digital entrepreneurship has emerged as a consequence of the development of digital technologies and digitalization. The subject of research conducted in this paper is digital entrepreneurship as a new paradigm of business due to market globalization. The main research problem addressed in this paper is the analysis of the impact that digital entrepreneurship has on business. Within the work, empirical research was conducted, on a sample of 147 respondents, which aimed to point out the potentials that digital entrepreneurship has in the Republic of Serbia. The research conducted in this paper aimed to point out the importance of digital entrepreneurship, as a new business paradigm in global markets, and the potential of digital entrepreneurship in the Republic of Serbia. In addition to a comprehensive analysis of secondary data sources, the results of which are presented in the literature review, the paper also used primary data sources, i.e. the results of research on the potential of digital entrepreneurship in the Republic of Serbia, conducted by the author through an online survey.

**Keywords:** entrepreneurship, digital entrepreneurship, entrepreneurial education, entrepreneurial intentions, globalization, Industry 4.0, digitalization

**JEL classification:** L20, L26, M19

**Сажетак:** Развој дигиталних технологија је из основа променио све сегменте функционисања људских друштава и начине пословања у свим делатностима. Дигитално предузетништво је настало као последица развоја дигиталних технологија и дигитализације. Предмет истраживања које је обављено у раду је дигитално предузетништво као нова парадигма пословања услед глобализације тржишта. Главни истраживачки проблем који је обрађен у раду је анализа утицаја које је дигитално предузетништво имало на пословање. У оквиру рада је обављено и емпијско истраживање, на узорку од 147 испитаника, које је имало за циљ да укаже на потенцијале које дигитално предузетништво има у Републици Србији. Циљ истраживања обављеног у раду се огледао у указивању на значај дигиталног предузетништва, као нове пословне парадигме на глобалним тржиштима, и на потенцијале дигиталног предузетништва у Републици Србији. Поред свеобухватне анализе секундарних извора података, чији су резултати приказани у поглављу преглед литературе, у раду су коришћени и примарни извори података, односно резултати истраживања потенцијала које дигитално предузетништво има у Републици Србији, које су спровели аутори рада путем онлајн анкете.

**Кључне речи:** предузетништво, дигитално предузетништво, предузетничко образовање, предузетничке намере, глобализација, Индустрија 4.0, дигитализација

**ЈЕЛ класификација:** L20, L26, M19

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## Introduction

Market globalization has, over the last thirty years, fundamentally changed the way we do business in all industries and in all parts of the world (Fox, 2001). Its basic characteristic is reflected in the creation of a single, global market, which, to a greater or lesser extent, affects the economic flows and activities that are realized in national markets. The history of market globalization dates back to the second half of the 20th century, when it reached its full momentum with the development of modern means of transport, information and communication technologies. This development has led to a situation in which national borders have become a factor limiting economic activity at all levels (World Economic Forum, 2019). Market globalization has an extremely large impact on the development of digital entrepreneurship in all parts of the world. The impacts of market globalization on digital entrepreneurship are mostly positive and are reflected in the creation of preconditions for its development and the emergence of numerous factors that enable development.

The changes brought by the globalization of the market and Industry 4.0 have created the need to use digital entrepreneurship as a new business paradigm, which should ensure the efficient use of opportunities that appear in the environment and reduce or completely eliminate threats. Digital entrepreneurship is not just a concept used when starting new business ventures. If existing companies want to adapt their business to the changes that are happening in the markets, they must implement elements of digital entrepreneurship in their business.

The Covid-19 virus pandemic, which began in early 2020, has had an extremely large impact on all segments of human society, with a particular impact on business activities (International Labour Organization, 2020). Digital entrepreneurship has proven to be a very effective response to the negative consequences of the Covid-19 pandemic, primarily through the creation of new and innovative business models that have enabled companies to adapt to market changes and new consumer demands.

The subject of the research conducted in the paper is digital entrepreneurship and its application in modern business conditions, which are characterized by globalization of the market and digital transformation that all segments of human societies go through, which is a consequence of digitalization that is very intense over the last two decades. The changes taking place in the markets require companies to implement comprehensive changes in business models, which must be adapted to the new business conditions. Digital entrepreneurship is becoming one of the basic and most important paradigms of business in the global market that is going through the process of digital transformation.

## 1. Literature review

### 1.1. Entrepreneurial education and entrepreneurial intentions

The term entrepreneurial education refers to the form of education that is, to the greatest extent, carried out during a person's childhood or adolescence (Lindh & Thorgren, 2016).

The effects achieved by entrepreneurial education are visible in all ages of a person, and they are especially emphasized during his/her entire career life. Based on the criterion of the goal to be achieved by its implementation, entrepreneurial education can be divided into (Dehghanpour Farashah, 2013):

- education that aims to create a person's understanding of entrepreneurship as an academic discipline,
- education aimed at ensuring that the person acts in an entrepreneurial manner, and
- education that aims to make a person an entrepreneur.

In modern conditions, entrepreneurship is one of the most important drivers of the development of national economies, but also of all other segments of society, which is why entrepreneurial education has gained additional importance. Some developed countries, such as Denmark, have fully understood the importance of entrepreneurship education, which has made it a segment of educational processes at all levels, from pre-school education to the highest levels of academic education (Pittaway & Cope, 2007). Special attention is paid to entrepreneurship education in developed countries, which is the last level of formal education that a person attends, in order to prepare him/her in the best possible way for the application of the entrepreneurial concept after being included in work processes.

The importance of entrepreneurship education is particularly emphasized in the segment of higher education, which should ensure the development of entrepreneurial intentions among students (Fayolle, 2005). Entrepreneurship education in an academic environment also aims to provide an entrepreneurial mindset among students, who should transfer it to the environment in which they will work and in which, as a rule, they will have positions at the levels of organizational structures that allow them to implement aspects of entrepreneurship in the organizations in which they are employed. (Bjekić & Strugar Jelača, 2019). Research conducted by Franke and Luthje (2004) indicates that the level of stimulation of the academic environment in the segment related to entrepreneurship is in direct correlation with the level of entrepreneurial potential of students and their entrepreneurial intentions.

The most important goals of entrepreneurship education are (Pittaway & Cope, 2007):

- creating an environment conducive to entrepreneurship, by enabling innovation and reducing resistance to change,
- promoting entrepreneurship, starting one's own business ventures and entrepreneurial ways of thinking,
- conducting various forms of training and coaching, which should develop entrepreneurial intentions in people and motivate them to start their own business ventures,

- providing support in creating a social environment that encourages and motivates entrepreneurship,
- creating an environment that facilitates the start-up of entrepreneurial ventures,
- providing various forms of professional assistance in all segments necessary for the launch and implementation of entrepreneurial ventures, and
- creating preconditions necessary for the development and practical implementation of new technologies.

Research suggests that individuals who have mastered entrepreneurial skills and who have developed entrepreneurial awareness and intentions have higher levels of awareness of their abilities and show a greater propensity to start entrepreneurial ventures or work in small companies (Zhang et al, 2015). Entrepreneurial education results in higher levels of efficiency and creativity of employees and their more pronounced contribution to the success of the company (Peterman & Kennedy, 2003). Students have the greatest inclination to entrepreneurship, while employees have not shown so much interest. (Rajković et al., 2020)

Despite the fact that most research indicates a positive correlation between education and people's propensity for entrepreneurship, there are also studies that indicate that in certain cases education can have negative effects on people's propensity for entrepreneurship. A study conducted by Nabi et al. (2010) concluded that people with higher education show lower levels of propensity for entrepreneurship compared to people with secondary or lower education. These results are interpreted as a consequence of the fact that large companies are willing to pay people who have high levels of knowledge and skills, which makes starting entrepreneurial ventures less attractive to them. Entrepreneurial education is a basic element that affects the entrepreneurial potential of individuals and the emergence of entrepreneurial intentions (Lindh & Thorgren, 2016). The results of the vast majority of research used as a basis for writing a paper indicate that there is a direct positive correlation between entrepreneurial education and a person's potential to become an entrepreneur (Marčetić et al., 2020).

Not enough attention is paid to entrepreneurship education in the Republic of Serbia, despite the fact that the state declaratively emphasizes the importance of entrepreneurship and advocates for the development of all its segments (Pavlović & Čelić, 2020). One of the basic problems, which is indicated by numerous researches, is reflected in the fact that persons who are engaged in entrepreneurship do not consider that they are appropriately recognized and acknowledged by the state (Bobić, 2017). Inadequate opportunities for access to finance, insufficient opportunities for acquiring formal knowledge and insufficient experience have been identified as the basic and most significant obstacles to the development of entrepreneurship among young people in Serbia (Bobić, 2017). Despite the positive steps being taken, the level of entrepreneurship education in Serbia is still low, which does not allow the realization of full entrepreneurial potential, especially among members of the younger population, who in the conditions of Industry 4.0 should be the main drivers of entrepreneurship.

Entrepreneurial intentions are the basic and most important element that drives an individual or a group of people to decide on the realization of an entrepreneurial venture

(De Clercq et al., 2013). The success of entrepreneurial ventures is greatly influenced by the intentions of the person who initiates it and his willingness to make maximum efforts to achieve the desired goals. The importance of entrepreneurship education is reflected in the fact that it is one of the basic and most important ways to initiate and support the entrepreneurial intentions of persons involved in the educational process.

Entrepreneurial intentions represent a person's intention to start an entrepreneurial venture in the near or distant future (Thompson, 2009). The term entrepreneurial intention also expresses the aspiration that a certain person expresses in relation to entrepreneurship, i.e. to starting an entrepreneurial venture (De Clercq et al., 2013). Entrepreneurial intent is a person's self-confirmation that he or she is convinced that he or she wants to start an entrepreneurial venture or that he or she plans to start it at some point in the future (Thompson, 2009). According to research, women in Serbia are much more unprepared to start their own business due to sociological factors (Marčetić et al., 2020). Amidžić (2019) stated that older men aged 55-64 have the greatest motivation for starting an entrepreneurial business in Serbia, mostly because they have less commitment (i.e. family and childcare obligations tend to be less intensive).

Entrepreneurial intentions of a person are influenced by a large number of elements, such as the environment in which they should start their entrepreneurial endeavour, levels of their formal education, entrepreneurial education, psychological factors, work environment, economic environment, gender, learning orientation, passion for work, etc. Entrepreneurial education is one of the basic and most important elements that affect the entrepreneurial intentions of individuals. Research conducted by Dinis et al. (2013) suggests that entrepreneurial education that individuals acquire during childhood and adolescence has a significant impact on the development of their entrepreneurial intentions in later life. The existence of a direct positive correlation between entrepreneurial education and entrepreneurial intentions has been confirmed in a large number of studies.

## **1.2. Modern business environment and entrepreneurship**

The business environment is one of the factors that have the most significant impact on entrepreneurship and the success of entrepreneurial ventures (Peltier et al., 2012). It has a direct impact on the ease of starting and managing entrepreneurial ventures, which is why it is one of the most important factors influencing the entrepreneurial intentions and willingness of persons to engage in entrepreneurship (Miletić et al., 2018). The term business environment refers to a set of all forces, factors and institutions, which can internally or externally affect the company's business (Lohrke et al., 2015). The internal elements of the business environment are influenced by the company's management, as they are under its control. External elements of the business environment, which may consist of economic, social, political and technological factors, are not influenced by the company's management, which can only react to them (Petrović & Leković, 2019).

The success of any entrepreneurial venture directly depends on the success of its adaptation to the environment in which it operates (Peltier et al., 2012). Entrepreneurs must continuously monitor changes in the environment and adapt their business to the new conditions prevailing in the markets in which they operate. The ability to adapt to change is

especially important in modern business environments, which are characterized by extremely dynamic changes, which have a very large impact on business operations and which require very rapid adaptation to new business conditions (Heiner et al., 2013).

Modern business environments are characterized by a large number of elements that have an extremely significant impact on entrepreneurial ventures. Globalization and the development of modern digital technologies, which led to the emergence of Industry 4.0, have fundamentally changed the environment in which modern entrepreneurial ventures take place (Harash et al., 2014). The changes that have taken place over the last two decades have resulted in the development of business environments that are significantly more conducive to the realization of entrepreneurial ventures than was previously the case. Digitization has created a large number of new opportunities for the realization of entrepreneurial ventures, which has greatly improved the environment viewed from the perspective of entrepreneurship.

The changes that have taken place in business environments as a result of globalization and digitalization have greatly reduced the obstacles that entrepreneurs faced during the start-up of entrepreneurial ventures (Heiner et al., 2013). Modern business environments offer a much larger number of opportunities for the realization of entrepreneurial ventures. In addition to technical and technological factors that influence the creation of more favourable environments for entrepreneurship, modern business conditions are characterized by various requirements that greatly facilitate the work of entrepreneurs (Harash et al., 2014). According to the survey, 80% of women entrepreneurs do not have sufficiently developed innovative activities due to poor institutional support, finance and macroeconomic environment (Beraha & Đuričin, 2020). Modern business environments require the use of flexible organizational structures, which are much more suitable for small, entrepreneurial ventures. Sustainable entrepreneurs differ from commercial entrepreneurs in that, in addition to economic goals, they also have environmental goals, which represents the future of entrepreneurship (Talić et al., 2020).

Large companies often face significant resistance and problems in implementing changes and introducing flexible organizational structures. In this way, they facilitate the operation of entrepreneurial ventures that can be adapted very quickly and efficiently to new market demands and the changes that are taking place. The changes that have taken place in modern business environments have largely had very significant positive impacts on entrepreneurship, which is why it can be concluded that these environments greatly contribute to creating a positive entrepreneurial climate (Lohrke et al., 2015).

### **1.3. Digital transformation and digital entrepreneurship**

Digital transformation is a modification, i.e. adaptation, of business models, which arises as a consequence of dynamic technological development and innovations that drive changes in consumer behaviour and society as a whole (Linz et al., 2017). The interdisciplinary character and relatively short history of digital transformation result in the lack of its generally accepted definitions, ontologies and taxonomies in the literature. Certain authors

point out that digital transformation is not a completely new concept, but that it represents only a continuation of the trend from the period from 1995 to 2001, which began with the development of the Internet (Fichman et al., 2014). Linz and co-workers point out that such attitudes are largely due to the fact that there are numerous similarities between the period of origin and development of the Internet and digital transformation, of which the most important are:

- the emergence of several basic technologies that have begun to achieve a critical mass of practical use,
- extremely large and often unjustified investments in entrepreneurial ventures, even in situations where their feasibility or economic justification is completely debatable,
- extremely fast acceptance of various technological tools and new technologies by consumers and companies, and
- significant influence of technological factors on the growth of stock prices and expected profits, which is primarily present in digital entrepreneurial ventures.

A significant specificity of digital transformation in relation to the period of origin and rapid development of the Internet is reflected in the fact that digital transformation is based on much more stable foundations, primarily on years of development experience and better understanding of mistakes that occurred in the past (Fichman et al., 2014). Digitization is a process carried out by digital teams, which are much more capable of managing the changes that occur as a result of innovation in various fields. The advantage of digital transformation is reflected in the fact that it is subject to much greater control by states, compared to the period of development of the Internet, which was characterized by insufficient attention paid by the state, which resulted in numerous abuses.

Most countries apply significantly stricter supervision and control over digitalization, primarily in segments that aim to provide protection to investors and buyers (Bican & Brem, 2020). This segment of control has very significant positive effects on digital entrepreneurship, primarily due to the fact that it significantly reduces the possibility of fraud and abuse, which characterized the period of its development at the end of the XX and in the first decade of the XXI century. Among other things, digitalization has led to a significant increase in the importance of digital entrepreneurship, which has become one of the most important business paradigms in the global market.

Due to its characteristics and faster response to changes in the environment, digital entrepreneurship enables more efficient avoidance of threats and use of opportunities, which results in high growth rates of entrepreneurial business ventures and stable competitive positions in existing or new markets. This fact indicates the extremely great importance that digitalization and digital entrepreneurship, as one of the elements whose development it has led to, have in defining the approach to doing business in the modern global market. A large number of authors point out that it is very important to build an adequate understanding of the concept of digital transformation, in order to ensure its

adequate use in order to introduce changes in organizational strategies and behaviours (Giones & Brem, 2017).

The influences that digital transformation has on the business models of companies and on the creation of business paradigms is the topic of research in a large number of scientific papers. The changes that companies are implementing, which are a consequence of the digital transformation, can occur in two ways, as voluntary and reactive (Bican & Brem, 2020). Voluntary changes imply situations in which companies actively shape their future strategies by implementing various optimizations and investments. Reactive changes occur as a result of unplanned and unexpected events that affect the company's operations and require changes in its business strategies or their adjustment.

#### **1.4. The impact of digital innovation on digital entrepreneurship**

Digital innovation is one of the most significant elements influencing the role that digital entrepreneurship has as a new business paradigm in the global market. Implementing efficient digital innovations and adapting to new business conditions has also resulted in paying more attention to digital entrepreneurship (Nylen & Holmstrom, 2015). Digital entrepreneurship creates the preconditions that enable efficient digital transformations through the implementation of numerous digital innovations. One of the basic and most important characteristics of digital entrepreneurship is reflected in providing quick reactions to all changes that occur in the environment and to adapting the business to the opportunities and threats that appear in the market.

The fact that significant digital innovations occur much more frequently than was previously the case further indicates the importance that digital entrepreneurship has as a new paradigm of business in modern markets (Fichman et al., 2014). During the 1980s, new technological solutions in most areas appeared every ten years. Over the past few years, innovations have accelerated to an extremely significant extent, so that they appear in a large number of areas every few months (Nylen & Holmstrom, 2015).

The fast pace of digital innovations is primarily a consequence of the basic characteristic of digital technologies, which has a significant impact on digital entrepreneurship, the ease of reconfiguration of existing solutions. The processes that characterize digital innovations, which are implemented within Industry 4.0, differ greatly from the processes that were implemented during the industrial era. These differences are especially present when incorporating digital technologies into traditional products. One example is the inclusion of multimedia systems and navigation in cars, which are characterized by a number of challenges resulting from differences in the innovation processes associated with these two types of products (Bican & Brem, 2020).

Digital innovations enable the realization of a large number of different benefits, and they also represent extremely great challenges for implementation, primarily due to the complexity of understanding the process through which they are realized (Nylen & Holmstrom, 2015). All digital innovations that are implemented can be divided into three basic categories – digital process innovations, product innovations and business model innovations (Fichman et al., 2014). Digital business process innovations include all new forms of doing business within the company, which are enabled by various forms of digital



assets. Product innovation encompasses all those types of innovations that a company implements on the products and services it sells to its customers. Digital business model innovations include all those innovations that companies implement on the models with the help of which they perform their business activities.

The digital innovation process consists of four interrelated phases (Fichman et al., 2014). The first phase of the digital innovation process is the discovery phase, during which new ideas are identified and their potential for practical realization is determined. The development phase is the second phase of the digital innovation process, during which the idea is transformed into an innovation that is functional, i.e. that can be used. During the diffusion phase, the innovation spreads among its potential users. During the last, phase of influence, the full potential of digital innovation is realized, during which value is created, which is a consequence of turning innovation into improvement. Digital entrepreneurship enables the maximum possible use of innovative potential and efficient transformation of digital innovations into business ventures.

### **1.5. The concept of digital entrepreneurship**

Digital entrepreneurship can be defined as the process of entrepreneurial creation of digital value using various socio-technical digital facilitators in order to support the efficient collection, processing, distribution and use of digital information (Autio et al., 2018). Digital providers can be used to support all processes of creating a new business venture, from generating ideas and recognizing business opportunities, to product production, sales, marketing and distribution. Steininger (2019) points out that a large number of new technological and technical solutions, such as social media, open-source software and hardware, group financing, online reputation assessment, big data analytics or three-dimensional printing have greatly encouraged future entrepreneurs to start their business ventures (Steininger, 2019). These solutions resulted in a significant reduction of the barriers that existed between the ideas and starting a new business venture, which motivated a large number of people to embark on entrepreneurship.

Le Dinh et al. (2018) point out that the use of digital tools and platforms encourages the emergence of new types of jobs, which can hardly be unambiguously classified into any of the traditional categories of employment (Le Dinh et al., 2018). These authors define digital entrepreneurship as “aligning traditional entrepreneurship with new ways of creating and doing business in the digital age” (Le Dinh et al., 2018). The concept of digital entrepreneurship is the creation of different types of compromises between traditional entrepreneurship and a large number of new elements that have emerged as a result of digitalization and the development of a large number of new technologies in different fields.

In addition to academic circles, the view of digital entrepreneurship as cyber entrepreneurship is widely accepted in other segments of society. The European Commission's definition of digital entrepreneurship is also based on the view that digital entrepreneurship is primarily based on the use of modern technologies. In its definition, the European Commission emphasizes that "digital entrepreneurship encompasses all business ventures and transformations of existing ventures, which drive the creation of economic

and/or social values, the creation and use of new digital technologies. Digital business ventures are characterized by a high level of new digital technologies. related to social networks, big data, mobile technologies and cloud computing) in order to improve the way of doing business, creating new business models, strengthening business intelligence and involving new customers and stakeholders. Digital entrepreneurship creates jobs and opportunities for future development." (European Commission, 2015).

Steininger (2019) points out that information and communication technologies have four main roles in business ventures in the field of digital entrepreneurship. Information and communication technologies have roles (Steininger, 2019):

- facilitators, by facilitating the operations of entrepreneurial ventures that have started operating,
- mediators for new entrepreneurial businesses,
- results of entrepreneurial business, and
- a ubiquitous provider of new digital business models.

In some scientific papers dealing with the topic of digital entrepreneurship, this term is often mistakenly equated with activities aimed at ensuring the inclusion of information and communication technologies in traditional entrepreneurship (Autio et al., 2018). These views of the authors may result in a misconception of this concept, which may lead to the difference between traditional and digital entrepreneurship being limited exclusively to the level of use of modern technologies within the framework of entrepreneurial ventures. Digital entrepreneurship is much more than the introduction of digital technologies in business, it requires the creation of new conceptual models, without which it is not possible to provide efficient management of entrepreneurial ventures and take advantage of opportunities that appear in modern markets (Acs et al., 2017).

By analysing scientific papers and professional literature dealing with digital entrepreneurship, which were available to the author during the research, it is possible to identify four directions in which the largest number of research in this area:

- contributions of digital business models to entrepreneurship,
- digitalization of entrepreneurship and the processes that take place within it,
- contributions of digital platforms to the strategy, and
- digital entrepreneurship ecosystem.

## 2. Methodology

The sample size is 147 (n=147) and it included students enrolled in management and business studies, and alumni who graduated in management and business studies in the Republic of Serbia. By including students and alumni, a broader reach of digital entrepreneurship was addressed. The survey included four main variables with items that were evaluated via a seven-point Likert-scale. The survey variables and items are presented in Table 1.

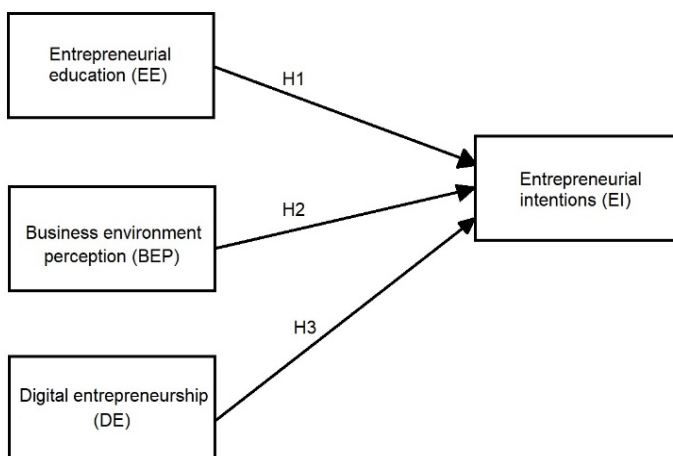
Table 1. Survey items

Dimension	
<b>Entrepreneurship intentions</b>	I would start my own business. I am planning to start my own business. I have a strong will to start my own business. My main career goal is to start my own business.
<b>Entrepreneurship education</b>	Formal education gave me the necessary knowledge to start my own business. I possess the necessary knowledge and skills to start my own business. I know what is necessary to start my own business. I know which ICTs are used in entrepreneurship. I possess knowledge in modern ICTs.
<b>Business environment perception</b>	The economic situation in Serbia is adequate for starting own business. The political climate in Serbia is adequate for starting own business. There is great chance for entrepreneurship success. There is an adequate entrepreneurial climate in Serbia. I think my own business would be successful long-term.
<b>Digital entrepreneurship</b>	The digitalization of entrepreneurship creates new possibilities. The Internet presents the global market and enables conducting business globally and locally. I think that digitalization is the future of business. Digital technologies can significantly contribute to entrepreneurship. Digital technologies are important for business success.

Each question was evaluated from 1 to 7 (1 - totally disagree; 7 - totally agree). Besides the noted items, questions regarding gender, age, employment, and education were included.

The obtained data was analysed via descriptive statistics, multicollinearity test, correlation analysis, linear regression analysis, and logistic regression analysis. This way, significant results were obtained that presented and the relations between the measured variables. The research framework and observed relations are depicted in Figure 1.

Figure 1. Research framework



Source: Authors' research framework and observed relations

The results are presented in the next section.

### 3. Results

Results of the descriptive statistics are presented in Table 2.

Table 2. Results of the descriptive statistics

Dimension	Min.	Max.	Mean ( $\mu$ )	(s)	Cronbach's alpha
Entrepreneurial intentions (EI)	1	7	5.22	1.56	0.920
Entrepreneurial education (EE)	1	7	4.70	1.33	0.841
Business environment perception (BEP)	1	7	3.57	1.43	0.905
Digital entrepreneurship (DE)	3	7	6.23	0.87	0.901

Source: Authors' research results

The mean values are in the range of 3.57 (BEP) and 6.23 (DE). Besides the mean values, the minimum and maximum values for each variable are noted, as well as the standard deviation. Additionally, the results of the reliability test are noted. The Cronbach's alpha values indicate that there is an adequate internal consistency between the items within the variables.

Next, the results of the Pearson's correlation analysis are presented in Table 2.

Table 3. Results of the correlation analysis

Correlation analysis				
	EI	EE	BEP	DE
Entrepreneurial intentions (EI)	1.000*			
Entrepreneurial education (EE)	0.503	1.000*		
Business environment perception (BEP)	0.485	0.536	1.000*	
Digital entrepreneurship (DE)	0.082	0.144	0.016	1.000*

\*significance is 95%

Source: Authors' research results

The significance was set to 95%. The results indicate a strong and positive relationship between EE and EI (0.503); BEP and EI (0.485); BEP and EE (0.536). Further, there is weak positive correlation between DE and EE (0.144), while no statistically significant correlation was noted between DE and EI (0.082); and between DE and BEP (0.016).

Table 4. Multicollinearity test

Multicollinearity test				
	Entrepreneurial intentions (EI)	Entrepreneurial education (EE)	Business environment perception (BEP)	Digital entrepreneurship (DE)
R <sup>2</sup>	0.319	0.378	0.354	0.027
Tolerance	0.681	0.622	0.646	0.973
Variance inflation factor (VIF)	1.470	1.607	1.549	1.028

Source: Authors' research results

Based on the Variance Inflation Factor (VIF) values, which are not above 2.500, there are no multicollinearity present between the measured variables.

Further on, the results of a linear regression analysis are presented in Table 4.

Table 5. Results of the linear regression analysis

Regression analysis						
Y	X	$\beta$	p-value	R <sup>2</sup>	F	F Sig.
		2.182				
Entrepreneurial intentions (EI)	Entrepreneurial education (EE)	0.392	<0.0001	0.319	22.356	<0.0001
	Business environment perception (BEP)	0.331	0.0003			
	Digital entrepreneurship (DE)	0.051	0.687			

Source: Authors' research results

The results of the regression analysis indicate a moderate influential relationship between the dependent variable (EI), and independent variables (EE, BEP, DE). However,

the  $\beta$  value and the p-value for the DE independent variable indicate that this relation is statistically significant. Therefore, the influence of DE on EI is negligible. Further, based on the linear regression results, the following equation is defined:

$$EI = 2.18197 + 0.392 * EE + 0.331 * BEP + 0.0501 * DE$$

Next, besides the linear regression analysis, a logistic regression analysis was conducted as it can be more suitable for ordinal data. The logistic regression analysis indicates that there is a positive relationships between EE and EI, and BEP and EI, while DE is doesn't have affect EI.

Table 6. Logistic regression analysis

	R <sup>2</sup> McFadden	R <sup>2</sup> Cox and Snell	R <sup>2</sup> Nagelkerke	AIC
Entrepreneurial education (EE)	0.061	0.244	0.247	665.49
Business environment perception (BEP)	0.042	0.176	0.178	678.15
Digital entrepreneurship (DE)	0.0025	0.011	0.011	704.69

Source: Authors' research results

## 4. Discussion

The research conducted in this paper aimed to provide verification of three hypotheses that were set within it. The first hypothesis of the research was "Entrepreneurial education is in a positive relationship with entrepreneurial intentions". The results of the research indicate the existence of positive relations between the entrepreneurial education of the respondents and their entrepreneurial intentions. Based on these positive relations between the above variables, the first research hypothesis can be accepted as correct, i.e. it can be concluded that there is a positive relationship between entrepreneurial education and entrepreneurial intentions. The positive relationship between entrepreneurship education and entrepreneurial intentions was also the result of research presented in the literature review, based on which it can be concluded that the results are consistent with other research conducted in this area.

Another hypothesis tested by the research was "Positive perception of the business environment is in a positive relationship with entrepreneurial intentions." The results of the research indicate the existence of a positive correlation between the variables of entrepreneurial intention and a positive perception of the business environment. Based on this relation, it can be concluded that the respondents believe that the business environment influences the emergence and development of entrepreneurial intentions, which is why the second research hypothesis can also be accepted as correct. The results of the research that are processed in the theoretical part of the paper also indicate the existence of a positive relationship between the business environment and entrepreneurial intentions.

The last, third hypothesis of the research conducted was "Positive perception of digital entrepreneurship is in a positive relationship with entrepreneurial intentions." The results obtained by the research conducted in this paper do not indicate the existence of a positive relationship between the positive perception of digital entrepreneurship and entrepreneurial intentions, which is why the third hypothesis of the research must be rejected. Similar results were obtained in most of the studies processed in the theoretical

part of the paper. The results of a small number of studies indicate the existence of a very weak positive relationship between these two variables.

The sample on which the survey was conducted is represented by persons who are studying management and business studies or have already graduated from faculties in these fields. The fact that the sample on which the survey was conducted was represented exclusively by respondents who want to develop their careers in the field of management certainly had an impact on the fact that the number of respondents who expressed entrepreneurial intentions is higher than the participation of potential entrepreneurs in the total population. The research whose results are presented in the literature review was most often conducted in countries with developed market economies and a high level of entrepreneurship development, with the largest number of respondents representing entrepreneurs and company managers. The results obtained from the research conducted in this paper do not deviate significantly from the research results presented in the literature review and they indicate the existence of significant links between entrepreneurial intentions and the environment in which a person lives, as well as between entrepreneurial intentions and entrepreneurial education.

## **Conclusion**

As a new business paradigm that has emerged precisely due to the impact of market globalization and digitalization, digital entrepreneurship enables very efficient use of opportunities that appear in modern markets and reducing the negative effects of threats to the lowest level. The development of Industry 4.0 has led to extremely significant changes in the way of life and business in all parts of the world and in all segments of societies and economic activities. The globalization of the market has, over the last thirty years, fundamentally changed the way we do business in all industries and in all parts of the world.

The globalization of the market, combined with Industry 4.0, enabled the creation of the preconditions that were necessary for digital entrepreneurship to become a new business paradigm. The digitalization and digital transformation that has resulted from it have led to significant changes in all business segments and in all parts of the global market. They have led to the emergence of a large number of new technologies, which are in most cases based on the Internet, which have had a very large impact on society as a whole. Digitization has led to the connection of the physical and digital world, which has resulted in the emergence and development of digital entrepreneurship. The changes brought about by digitalization have opened space for entrepreneurs, who have managed to adapt to them in a much faster and more efficient way than existing market participants, which has resulted in the emergence of digital entrepreneurship as a completely new area of entrepreneurship.

The digital transformation has led to very significant changes over the last two decades, which have been reflected in the emergence of numerous new forms of business, among which digital entrepreneurship stands out as one of the most significant. Digital innovation is one of the most significant elements influencing the role that digital entrepreneurship has as a new business paradigm in the global market. Digital

entrepreneurship creates the preconditions that enable efficient digital transformations through the implementation of numerous digital innovations.

Digital entrepreneurship is a process of entrepreneurial creation of digital value using various socio-technical digital providers in order to support the efficient collection, processing, distribution and use of digital information. It represents the creation of different types of compromises between traditional entrepreneurship and a large number of new elements that have emerged as a result of digitalization. In the conditions of business globalization, digital entrepreneurship is characterized by extremely high levels of complexity and the existence of a large number of factors that, in different ways, affect the success of entrepreneurial ventures. The changes that have taken place as a consequence of market globalization and digitalization have resulted in the development of digital entrepreneurship as a new business paradigm.

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# The impact of human resource management activities on job satisfaction

## Утицај активности менаџмента људских ресурса на задовољство послом

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**Abstract:** Although there are numerous and various factors that can affect job satisfaction, human resource management has been identified as one of the most important causes of job satisfaction. For this reason, this paper analyses the impact of human resource management and its activities on job satisfaction in various organizations in the Republic of Srpska, with the main goal to investigate and determine the existence and nature of the relationship between human resource management activities, as an independent variable, and job satisfaction, as a dependent variable. In order to analyse the observed relationship, an empirical research was conducted on a sample of 738 employees from 283 organizations from the Republic of Srpska. The research was conducted using a specially created survey questionnaire, and the reliability of the created instrument was calculated using the Cronbach's alpha coefficient. Based on the results of the research, which were obtained by correlation analysis, the basic hypothesis was confirmed, which proved that human resource management activities have a statistically significant effect on job satisfaction. Also, all additional hypotheses, claiming that individual human resources management activities (recruitment and selection, training, development and rewarding) have a positive effect on job satisfaction, were confirmed.

**Keywords:** human resource management, staffing, human resource development, rewarding, job satisfaction

**JEL classification:** J24, J28, M12, M54

**Сажетак:** Иако постоји велики број фактора који могу утицати на задовољство послом, менаџмент људских ресурса је идентификован као један од најважнијих узрока задовољства послом. Управо из тог разлога у овом раду се анализира утицај менаџмента људских ресурса и његових активности на задовољство послом у различитим организацијама из Републике Српске, са основним циљем да се истражи и утврди постојање и природа везе између активности менаџмента људских ресурса, као независне варијабле, и задовољства послом, као зависне варијабле. Да би се анализирао посматрана веза спроведено је емпиријско истраживање на узорку од 738 радника из 283 организације из Републике Српске. Истраживање је спроведено помоћу посебно креираног анкетног упитника, а поузданост креираног инструмента израчуната је помоћу Кронбаховог коефицијента алфа. На основу резултата истраживања, који су добијени помоћу корелационе анализе, потврђена је основна хипотеза, на основу чега је доказано да активности менаџмента људских ресурса утичу на задовољство послом. Такође, потврђене су и све помоћне хипотезе којима се тврди да појединачне активности менаџмента људских ресурса (регрутовање и селекција, обука, развој и награђивање) позитивно утичу на задовољство послом.

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**Кључне речи:** менаџмент људских ресурса, запошљавање, развој људских ресурса, награђивање, задовољство послом

**ЈЕЛ класификација:** J24, J28, M12, M54

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## **Introduction**

As employees or human resources are an integral part of any organization, their role in achieving the organization's goals has often been the subject of various discussions (Barney, 1991; Huselid, 1995). Although the opinions of the authors are different, many authors treat human resources as the most valuable type of resource (Barney & Wright, 1998) and a very important source of competitive advantage (Wang & Barney, 2006; Vemić-Đurković et al., 2020). It is considered that quality human resources having adequate knowledge, skills and abilities are the key to successful business. However, in addition to the competencies of employees, motivation and job satisfaction play a big role in exploiting their potentials, with which employees can be directed towards achieving the set goals (Aleksić-Glišović et al., 2019). Thus, the behaviour of employees in the desired way is usually provided by a high level of their job satisfaction. However, in order to achieve a high level of satisfaction, it is necessary for the organization to discover the causes or factors that affect the satisfaction of its employees. Although numerous factors of job satisfaction have been identified in the existing literature (Pan, 2015), one of the most important is human resource management (hereinafter HRM), which refers to a set of activities that are used for managing human resources in organizations.

The relationship between HRM and job satisfaction is often discussed in theory in the field of organization and management (Purcell et al., 2003; Paauwe, 2004; Currall et al., 2005; Heneman, 2007; Tyson, 2015; Mathis et al., 2015; Gómez-Mejía et al., 2016; Armstrong, 2017; Torrington et al., 2017; Noe et al., 2018). Although theoretically recognized, the relationship between the observed variables has not yet been fully explored. Although some empirical research linking HRM to job satisfaction has been conducted, the analysis has shown that previous research has a number of shortcomings. Certainly the biggest shortcoming is the comprehensiveness of the research, since they are focused only on the analysis of the impact of certain HRM activities on job satisfaction, and therefore do not offer a complete picture of the researched phenomenon. Thus, existing research has a partial approach to analysis, given that only a small number of characteristics of the analysed HRM activities are included in most such research, where certain important characteristics are often neglected. Also, the analysis showed that there are no studies that adequately shed light on the relationship between the observed variables in the context of developing countries and countries in transition.

For these reasons, the subject of research in this paper is the impact of HRM activities on job satisfaction in various organizations operating in the Republic of Srpska, while the main goal of the paper is to investigate and determine the existence and nature of the relationship between the observed variables. In order to analyse the observed impact and prove the set hypotheses, an empirical research was conducted on a sample of 738

workers employed in 283 organizations from the Republic of Srpska. A specially created survey questionnaire was used in the research.

The paper consists of several parts. In the first part of the paper, after the introduction, the theoretical background of the analysis is presented. The next part of the paper includes the research methodology in which the research methods and techniques are presented, as well as the sample on which the research was conducted. The results of the research and discussion are presented in the third part. Finally, there is a conclusion within which the basic limitations of the research and the recommendations for future research are stated.

## 1. Theoretical background

*Job satisfaction.* The concept of job satisfaction, which is most often defined as a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences (Locke, 1969, 1976), is one of the most important and most researched attitudes that employees have about their work (Davis, 2004; George & Jones, 2012; McPhail et al., 2015). The relevance of the observed concept is the result of the belief that changes in the level of job satisfaction have numerous positive, but also negative consequences, both for the individual and for the organization. Previous research has shown that the factors that represent potential causes and that can affect the level of job satisfaction are complex, different and come from different sources (Coomber & Barriball 2007; Pan, 2015). In addition to the demographic or personal characteristics of employees, environmental factors or organizational factors that shape the work environment can be the cause of changes in the level of job satisfaction (Zeffane, 1994; Reiner & Zhao, 1999; Ellickson & Logsdon, 2001; Ellickson, 2002; Crossman & Harris, 2006). Although there are a number of these factors, one of the most important factors whose modification can change the existing level of job satisfaction is HRM or the design of HRM activities.

*Human resource management activities.* The observed activities relate to policies, practices and systems that affect employee behaviour, attitudes and performance, and their main purpose is to ensure success through people, or to increase organizational efficiency and the ability of the organization to achieve its goals through effective use of available resources (Armstrong, 2017). As there is still no single position on the activities that are part of this function, different classifications of observed activities can be found in the literature. Nevertheless, most of these definitions include recruitment, selection, training, development and rewarding activities in HRM activities. Recruitment is the process of identifying and attracting candidates to fill vacancies in the organization (Zolak Poljašević, 2021), or the process of attracting qualified candidates in such numbers that will allow the organization to choose the best (Bogićević Milikić, 2017). Another activity in the field of human resources is the selection which is related to the selection of candidates through consideration of applications, interviews, testing, evaluation, job offers, obtaining references and preparation of employment contracts (Armstrong, 2017), or the procedure by which the candidates who best meet the requirements of a particular job are selected (Bahtijarević-Šiber, 1999). These two related activities are of great importance for the organization, given that their outcome directly affects other HRM activities, as well as

organizational performance (Delaney & Huselid, 1996; Ahmad & Schroeder, 2003; Katou & Budhwar, 2006). Employee training refers to an HRM activity that involves changes in specific knowledge, skills, abilities, attitudes, or behaviour (Bogićević Milikić, 2017). It is defined as a planned effort of the organization to improve the process of acquiring knowledge, skills and abilities that are crucial for efficient work (Štangl Šušnjar & Zimanji, 2005; Noe et al., 2018), or as a process allowing employees to acquire specific competencies or help in correcting shortcomings related to their performance (Gómez-Mejía et al., 2016). On the other hand, development is a set of systematic, planned activities that an organization conducts in order to enable employees to acquire new skills necessary to meet current and future job requirements (Werner & DeSimone, 2012), i.e. the organization's effort to enable employees to acquire skills that will be needed by the organization in the future (Zolak Poljašević, 2021). Employee rewarding is a central feature of HRM (Torrington et al., 2017) and includes a system related to the money, goods and services that employees receive from the employer in exchange for their work, as well as a system for evaluating their performance (Bogićević Milikić, 2017). The basis of the observed system consists of rewards (compensations or salaries) which include all types of salaries or rewards paid to employees (Dessler, 2007).

*The relationship between human resource management activities and job satisfaction.* The analysis of existing studies (Lam et al., 2001; Holman, 2002; Chen et al., 2003; Lam & Zhang, 2003; Garrido et al., 2005; Kuratko et al., 2005; Saura et al., 2005; González & Garazo, 2006; Fillion et al., 2007; Cummings et al., 2008; Cerit, 2009; Kaya et al., 2010; Leppel et al., 2012; Gaki et al., 2013; Limbu et al., 2014; Kim et al., 2014; Huang & Gamble, 2015; Tabvuma et al., 2015; Tanwar & Prasad, 2016; Božović et al., 2019) has shown that there is a relatively small number of studies that adequately shed light on the relationship between the observed variables. Although previous research has certain shortcomings, the results obtained by the authors in previous studies have shown that there is a significant relationship between HRM activities and job satisfaction. Thus, based on a review of the existing literature, and starting from the defined subject of research and the basic goal, the basic hypothesis in the paper is defined as:

H<sub>0</sub>: Human resource management activities have a positive effect on job satisfaction.

In order to study the observed relationship in detail, four additional hypotheses were defined, within which the nature and intensity of the relationship between each individual HRM activity and job satisfaction are examined separately. The defined additional hypotheses are:

H<sub>1</sub>: Recruitment and selection have a positive effect on job satisfaction.

H<sub>2</sub>: Training has a positive effect on job satisfaction.

H<sub>3</sub>: Development has a positive effect on job satisfaction.

H<sub>4</sub>: Rewarding has a positive effect on job satisfaction.



When analysing the relationship between identified HRM activities and job satisfaction, the characteristics of individual HRM activities and their relationship to job satisfaction will be observed.

## 2. Research methodology

In order to examine the impact of HRM activities on job satisfaction and to test the set hypothesis, an empirical research was conducted through which primary data were collected in various organizations from the Republic of Srpska. Given the defined research question, subject and objectives of the research, the choice was made in favour of quantitative methodology, where the survey method was chosen for conducting research due to the numerous advantages that are desirable for the research of identified variables.

A specially created survey questionnaire consisting of three parts was used to collect data. The first part of the questionnaire included questions about the demographic characteristics of the respondents (gender, age, education level, position, work experience, tenure in the current organization) and general questions about the characteristics of the organization in which the respondents are employed (size, ownership, sector). The second part of the questionnaire included 20 questions on the independent variable (HRM), while the third part of the questionnaire included one question on the dependent variable (JS). The created questionnaire was delivered by e-mail to all organizations from the sample, with a request to forward it to all employees in the organization. The respondents submitted the answers directly to the researchers.

HRM activities as an independent variable was analysed through the satisfaction of respondents with different characteristics of HRM activities. The independent variable was assessed using 20 defined items or questions on HRM activities: recruitment and selection (three items), training (three items), development (four items) and rewarding (10 items). For the evaluation of job satisfaction (JS) as a dependent variable, a global score was used (Snipes et al., 2004) which provides a general assessment of the overall level of job satisfaction (Scarpello & Campbell, 1983; Fields, 2002). Thus, job satisfaction was measured by one item or one question ("Overall, how satisfied are you with your job?"). Respondents expressed their satisfaction with all identified items using a five-point Likert-type scale (Likert, 1932), with responses ranging from "not at all satisfied" to "completely satisfied."

To justify the use of the created scale, the reliability of the scale was calculated based on the Cronbach's alpha coefficient (Cronbach, 1951), whose calculated value ( $\alpha = 0.911$ ) shows that the proposed instrument is a reliable scale for assessing satisfaction with HRM activities.

In order to check and test the hypotheses that were defined on the basis of theoretical research, an empirical research was conducted and primary data were collected in various organizations from the Republic of Srpska. Based on the Business Register, which is a publicly available, unique database of business entities from the Republic of Srpska, a sample of organizations has been defined. From a set of 1,073 organizations, with a

confidence level of 95% and a marginal error of 5%, a simple, random sample of 283 organizations was formed, with the planned sample of respondents representing a set of all workers employed in selected organizations (6983 workers). By eliminating inadequately filled questionnaires and questionnaires with missing data, the final sample of 738 respondents was defined. The survey response rate of 10.57% represents an acceptable response rate when it comes to organizational surveys (Baruch & Holtom, 2008).

The structure of the sample based on the demographic characteristics of the respondents and the characteristics of the organizations in which the respondents are employed is presented in Table 1.

*Table 1: Sample characteristics*

<b>Variable</b>	<b>Labels</b>	<b>n</b>	<b>%</b>
Gender	Male	247	33.47
	Female	491	66.53
Age	Up to 25 years	41	5.55
	26-35 years	252	34.15
	36-45 years	155	21.00
	46-55 years	141	19.11
	More than 56 years	149	20.19
Education level	Primary school	11	1.49
	Secondary school	195	26.42
	High school	65	8.81
	University degree	372	50.41
	Master degree	77	10.43
	PhD	18	2.44
Position	Managerial	157	21.27
	Non-managerial	581	78.73
Work experience	Up to 5 years	184	24.93
	6-15 years	218	29.54
	16-25 years	143	19.38
	26-35 years	147	19.92
	More than 35 years	46	6.23
Tenure in the current organisation	Up to 5 years	306	41.46
	6-15 years	209	28.32
	16-25 years	130	17.62
	26-35 years	81	10.97
	More than 35 years	12	1.63
Size	Small (up to 50 employees)	180	24.39
	Medium (51-100 employees)	383	51.90
	Large (more than 100 employees)	175	23.71
Ownership	State-owned	315	42.68
	Private	423	57.32
Sector	Manufacture	224	30.35
	Services	514	69.65

*Source: Authors research*

### 3. Research results

Based on the data on descriptive measures (arithmetic mean and standard deviation) for the dependent and independent variables, which are presented in Table 2, it can be seen that the respondents from the sample are satisfied with the HRM activities ( $M = 3.2849$ ), as well as with all identified HRM activities (the estimated level of satisfaction for each variable has a value above the neutral mean). If, based on the results of the research, the observed variables are ranked according to the assessed level of satisfaction, it can be noticed that the respondents from the sample are on average most satisfied with RS ( $M = 3.5136$ ), then with T ( $M = 3.3166$ ), then with D ( $M = 3.2930$ ), while the average level of satisfaction of the respondents is the lowest with R ( $M = 3,204$ ). The data from the table show that the answers of the respondents deviated the most from the arithmetic mean in T ( $SD = 1.06866$ ), while the average smallest deviation occurred in RS ( $SD = 1.00783$ ).

Table 2: Descriptive Statistics (Times New Roman 8pt Italic)

	N	Mean	Std. Deviation
RS	738	3.5136	1.00783
T	738	3.3166	1.06866
D	738	3.2930	1.06517
R	738	3.204	1.0382
HRM	738	3.2849	.97799
Valid N (listwise)	738		

Source: SPSS

Based on the results of the conducted empirical research, the defined hypotheses were tested. To test the hypothesis about the relationship between HRM activities and JS, as well as the hypothesis about the relationship between individual HRM activities (RS, T, D and R) and JS, correlation analysis was used. The summary results are shown in Table 3.

Table 3: Summary results of correlation analysis

		RS	T	D	R	HRM	JS
RS	Spearman's rho	1.000	.756**	.829**	.748**	.846**	.736**
	Sig. (2-tailed)	.	.000	.000	.000	.000	.000
	N	738	738	738	738	738	738
T	Spearman's rho	.756**	1.000	.864**	.835**	.904**	.821**
	Sig. (2-tailed)	.000	.	.000	.000	.000	.000
	N	738	738	738	738	738	738
D	Spearman's rho	.829**	.864**	1.000	.872**	.941**	.849**
	Sig. (2-tailed)	.000	.000	.	.000	.000	.000
	N	738	738	738	738	738	738
R	Spearman's rho	.748**	.835**	.872**	1.000	.970**	.887**
	Sig. (2-tailed)	.000	.000	.000	.	.000	.000
	N	738	738	738	738	738	738
HRM	Spearman's rho	.846**	.904**	.941**	.970**	1.000	.891**

	Sig. (2-tailed)	.000	.000	.000	.000	.	.000
	N	738	738	738	738	738	738
JS	Spearman's rho	.736**	.821**	.849**	.887**	.891**	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.
	N	738	738	738	738	738	738

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

Source: SPSS

Based on the data from the previous table, the test results of the hypothesis, the calculated values of the correlation coefficient ( $r_s = 0.891$ ) and the calculated p values ( $p = 0.000$ ), it can be concluded that the correlation coefficient is positive and that there is a direct monotonic relationship in the sample. Also, the research results show that there is a strong correlation in the sample, and that for any level of significance it can be concluded that there is a quantitative correlation of the observed variables, i.e. that the observed relationship between HRM activities and JS is statistically significant. As the respondents with a higher degree of satisfaction with HRM activities have a higher degree of overall job satisfaction (JS), the basic hypothesis, stating that "there is a strong positive relationship between human resource management activities (HRM) and job satisfaction (JS)", was proved

Based on the results of the research, the statistical significance of the relationship between individual HRM activities (RS, T, D and R) and JS can be analysed and other hypotheses can be tested. From the analysis of the results from the previous table, it can be seen that all observed relationships are statistically significant, with the strongest correlation between R and JS ( $r_s = 0.887$ ;  $p = 0.000$ ), then between D and JS ( $r_s = 0.849$ ;  $p = 0.000$ ), then between T and JS ( $r_s = 0.821$ ;  $p = 0.000$ ), while the weakest correlation occurs between RS and JS ( $r_s = 0.736$ ;  $p = 0.000$ ). Based on the calculated values, it can be noticed that there are strong correlations in the sample, as well as that for any level of significance it can be concluded that there is a quantitative correlation of the observed variables, or that the relationships between individual HRM activities (RS, T, D and R) and JS are statistically significant. As the respondents with a higher degree of satisfaction with individual HRM activities have a higher degree of overall job satisfaction (JS), it can be concluded that hypotheses H1, H2, H3 and H4 are correct.

#### 4. Discussion

A review of the existing literature has shown that the relationship between HRM activities on the one hand, and job satisfaction on the other, can be found in the available literature and that there are also a number of studies examining the impact of HRM activities on job satisfaction. Thus, the results of the conducted research can be compared with the results of conceptually similar research. When it comes to the impact of HRM and its activities on job satisfaction, a review of the relevant literature did not find any research that studies the relationship between HRM activities and job satisfaction in organizations operating in neighbouring countries in a conceptually similar way. However, a review of all previous research can identify a number of studies that, among other things, analyse the existence and nature of the relationship between the observed activities and job satisfaction (Lam et

al., 2001; Holman, 2002; Chen et al., 2003; Lam & Zhang, 2003; Garrido et al., 2005; Kuratko et al., 2005; Saura et al., 2005; González & Garazo, 2006; Fillion et al., 2007; Cummings et al., 2008; Cerit, 2009; Kaya et al., 2010; Leppel et al., 2012; Gaki et al., 2013; Limbu et al., 2014; Kim et al., 2014; Huang & Gamble, 2015; Tabvuma et al., 2015; Tanwar & Prasad, 2016; Božović et al., 2019).

A more detailed analysis of the theoretical, methodological and conceptual aspects of the analysed research shows that the observed HRM activities in the analysed research were identified as independent variables. However, if the conceptual framework is taken into account, previous research can be classified into two groups. The first group includes research in which these activities are viewed as one of the factors that can affect the level of job satisfaction, while the second group includes research in which certain activities are viewed through the analysis of human resources practices, or as activities in the field of HRM. Of the observed activities, the activity of rewarding was most often studied, followed by training and development of employees, while the activities of recruitment and selection were less often the subject of study.

When it comes to research methodology, the authors of most studies opted for a quantitative methodology, where the collection of primary data was done using a questionnaire. The respondents in the research were workers who are employed in organizations that operate in various fields. In most of these studies, the authors came to the results that show that there is a statistically significant impact of the observed HRM activities on job satisfaction, which is confirmed by the results of research conducted in this paper, while the results of two studies prove otherwise (Cummings et al., 2008; Limbu et al., 2014).

Although there are many studies in which authors have analysed the impact of HRM activities on job satisfaction in different ways, previous research lacks comprehensiveness. Due to the inclusion of only certain activities in the analysis, there is a need for additional research on the impact of HRM activities on job satisfaction, which will include a comprehensive analysis of all these activities.

## **Conclusion**

The main purpose of this paper was to examine the nature and strength of the relationship between HRM activities and job satisfaction, by examining the impact of individual HRM activities on job satisfaction. Four HRM activities were included in the analysis, namely: recruitment and selection, training, development and rewarding of employees. The choice of these activities is justified on the basis of a review of the literature which shows that HRM activities most often include these activities. In order to confirm the defined hypotheses and to investigate the relationship between the defined variables, an empirical research was conducted using a specially created survey questionnaire. The research included a sample of 738 respondents who were employed in various organizations from the Republic of Srpska. The results of the research confirmed the results of previous research and proved that there is a statistically significant positive relationship between HRM activities and job satisfaction.

Although a review of the available literature reveals a number of studies that have studied the relationship between HRM activities and job satisfaction, this research has certainly made some scientific contribution. Unlike previous studies that had a partial approach, the conducted study studied the impact of HRM activities on job satisfaction comprehensively, taking into account a number of characteristics that have not been studied in previous research; thus, this article expanded the existing fund of knowledge about the relationship between HRM activities and job satisfaction. Also, the contribution of the paper is the fact that the relationship between HRM activities and job satisfaction was confirmed on a sample that includes a large number of workers employed in many different organizations, unlike previous surveys that were conducted on samples of respondents coming from one organization or from several organizations performing the same activity. The scientific contribution is reflected in the created scale for assessing the satisfaction of HRM activities, which can be used to assess the satisfaction of employees with HRM, as well as with existing HRM activities. As the results of the conducted research confirmed the existence and explained the nature of the relationship between the observed variables, a certain contribution to practice was realized. Managers of various organizations from the Republic of Srpska and the surrounding countries were given a tool with which they can measure employee satisfaction with different characteristics of human resource management. By changing the characteristics that have the greatest impact on the level of job satisfaction, managers have the opportunity to influence the existing level of employee satisfaction. In this way, the negative effects that occur as a result of employee dissatisfaction can be reduced and all the positive consequences provided by the increase in job satisfaction can be used.

The conducted research also has certain limitations. The first limitation concerns the way in which the defined variables were evaluated. By studying HRM activities through the satisfaction of respondents with the identified characteristics of HRM activities, it is not possible to collect and analyse data on existing HRM activities in organizations. It is recommended that in future surveys, the evaluation of variables is performed in such a way that, in addition to data on satisfaction, data on the existing characteristics of HRM activities are also collected. Another limitation is the choice of survey method that does not allow for deeper analysis of HRM activities at the level of individual organizations, so in future research it would be desirable to use other methods that would allow for deeper analysis of HRM activities. The third limitation refers to the way the research is conducted, due to which there is a possibility that the questionnaire was not forwarded to all potential respondents. It is recommended to send questionnaires directly to the addresses of the respondents. The fourth limitation refers to the problem of generalization of the obtained results, considering that the sample in the research included employed workers from the Republic of Srpska. It is recommended to conduct additional research using the created questionnaire, which would include workers employed in countries in the region and in various organizations around the world.

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# The effect of solid waste management investments in the Republic of Serbia<sup>1</sup>

Ефекат инвестирања у управљање чврстим отпадом у Републици Србији

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**Abstract:** The problem of establishing an effective solid waste management system is complex and still unresolved in Serbian municipalities, cities and settlements. Most landfills in Serbia do not meet basic sanitary standards and can often contain waste that is dangerous to human, plant and animal health, and waste that can be recycled is often dumped. The aim of this paper is to investigate the relationship between waste generation and private investments in waste management. Statistical method of multiple linear regression was used to examine the impact of three predictors – economic development, investments in waste management, and urban population, on the dependent variable – municipal solid waste generation. The results of the research reveal that investments in waste management in Serbia do not have an effect on the waste reduction because the financial resources for such investments are not adequately managed. There is a large number of scientific researches that have dealt with the analysis of the mentioned relationship, however, their number on the example of Serbia is rather scarce. The results of the research could be useful to the state administrations of the Republic of Serbia.

**Keywords:** investments, municipal waste, waste generation, regression analysis

**JEL classification:** E22, Q57

**Сажетак:** Проблем успостављања ефективног система управљања чврстим отпадом комплексан је и још увек нерешен у српским општинама, градовима и насељеним местима. Већина депонија у Србији не задовољава основне санитарне стандарде и на њима се често може наћи отпад опасан по живот и здравље људи, биљака и животиња, а често се баца и отпад који је могуће рециклирати. Циљ овог рада је сагледавање односа између генерисања отпада и приватних инвестиција у управљање истим. У раду је примењен статистички метод вишеструке линеарне регресије, како би се испитао утицај три предиктора – привредни развој, инвестиције у управљање отпадом, и урбана популација, на зависну варијаблу – генерисање чврстог комуналног отпада. Резултати истраживања показали су да у Србији инвестиције у управљање отпадом немају ефекат на редукцију истог јер се финансијским средствима за таква улагања не управља адекватно. Велики је број научних истраживања која су се бавила анализом поменутог

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односа, међутим, њихов број на примеру Србије је прилично оскудан. Резултати истраживања могли би бити од користи државним управама Републике Србије.

**Кључне речи:** инвестиције, комунални отпад, генерисање отпада, регресиона анализа

**ЈЕЛ класификација:** E22, Q57

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## Introduction

The question of impact of investments, both domestic and foreign, on the economic growth of the country has been a burning question for many years which numerous eminent researchers have tried to answer. Thus, Serbia has gradually become an attractive destination for foreign investors, thanks to its many advantages, and nowadays, it is possible to notice the growth trend of foreign investments in Serbian municipalities and cities (Stojanović et al., 2017). Attracting brownfield investments, where technical and traffic infrastructure already exists, is especially important for the economic growth of Serbia (Sredojević et al., 2019). Nowadays, developing economies are becoming essential participants in the movement of foreign direct investment, primarily as a popular destination (Obradović & Lojanica, 2015). On the other hand, the question of impact of economic activities on the environment has long been overshadowed, but there has been encouraging interest in that question as well. Paul Van Der Merwe: "*Money makes the world go round*" is not far from the truth. Individuals, groups of individuals, and companies in national and international businesses are striving to make as much profit as possible, giving preference to the material over the natural. Just as wealth is not worth much to a sick man in an expensive suit, as he cannot buy health with it, so the wealth will not be of great benefit to the rich world economies if they do not have a healthy environment. The authorities of developed and developing countries must accept the fact that money cannot buy everything and that there has to be a way to increase economic growth without endangering the environment. Kenneth Boulding, a British economist (Boulding, 1966), in his essay vividly describes that planet Earth is not the Wild West where people, like cowboys, take everything in their path, expecting resources to always be in abundance, but a unique, closed system, resembling a spaceship, where humans must rationally use the limited resources given to them, in order to survive. Environmental economists agreed with the fact that the "space" economy should be led against the "cowboy" economy. Proponents of the conventional economics see the economy as a closed system that is self-sufficient and in which prices of products, services and factors of production are formed, while supporters of the ecological economics see the economy as an open system embedded in the ecosystem (Martinez-Alier, 2001). Proponents of this theory believe that the ecological economics is not a pure economics or ecology, but their mix, which recognizes the fact that the human economy is part of the natural world and the environment is a source of resources that are limited and scarce, as well as a place of waste storage.

Ecological economics is a transdisciplinary effort to broadly link the natural and social sciences, especially economics and ecology (Costanza, 2008). It recognizes the importance of efficient resource allocation, but requires a much deeper understanding of the relationship between economic development and resource exploitation (Neo, 2009). In

today's economy, natural resources are extracted from ores and transformed into products that are discarded after use, and such products become waste. However, a large part of that waste can be recycled, i.e. reused, and that, unfortunately, is not always the case in practice. This issue is dealt with by the circular economy. Circular economy is an approach that transforms the function of resources in the economy – factory waste becomes a valuable raw material in another production process, and the products themselves can be repaired, reused or improved, instead of being discarded (Đureta et al., 2016). It is an alternative to the outdated model of linear economy, which starts from the principles “take – make – use – throw”. The third most important anthropogenic source of methane emissions is waste management system (Živančev et al., 2020), i.e. this sector produces emissions of carbon-dioxide, black carbon and methane, which are one of the biggest environmental degraders nowadays. Although the term municipal solid waste (MSW) is not precisely defined in professional literature, it can be said that MSW is solid waste from households and commercial sector (Stepanov, 2018). Waste is not managed by creating landfills by the roadsides or in remote places. Proper waste management requires waste management plants and storages. Waste management plant is a stationary technical unit for storage, treatment or disposal of waste, which together with the construction part forms a technological unit, while the waste storage is the temporary storage of waste at the location of the producer or owner of waste, as well as the activity of the operator in a plant equipped and registered for temporary storage of waste (Nešić, 2010).

The term investment comes from the Latin word *investitio*, which means investing capital in some, usually, lucrative business (Petrović & Denčić-Mihajlov, 2011). In theory, there are a number of different definitions of the term investment and investing. Although there is no general agreement on the definition of investment, it can be said that mostly all well-known authors agree with the basic premise that investment, i.e. investing is giving up spending financial assets in the present in order to get certain benefits in the future. Private investments are crucial in the field of waste management because they have clear ownership, responsibility, and the rules are simpler than public investments. Thus, the money investments for environmental protection purposed for waste management are necessary to provide the optimal development, i.e. there is an optimal strategy for a country to be chosen in any economic development state (Grabowski & Vasconcelos, 1993). The funds allocated for waste management investments are usually large. Thus, the valuation of such, as well as any other investment venture, starts from the estimated future cash flows generated by the engagement of the investment (Valović Begović et al., 2017).

The goal of this paper is to study the impact of economic growth, investments in waste management and urban population on municipal solid waste generation of the Republic of Serbia, considering that in this country as well as in the countries of the region, this issue has been quite neglected.

This paper is structured as follows: unit 1 gives a theoretical background of previous research on the relationship between waste generation, economic growth and investments in waste management, and waste management in general. Unit 2 provides a short overview of the current state of waste management and investments in environmental protection in

Serbia. Unit 3 deals with data sources, methodology and research results. In the last part of the manuscript, a conclusion is given.

## 1. Theoretical background

A number of foreign authors have addressed the relationship between environmental investments, economic growth and MSWG. However, to the best of the authors' knowledge, there are no scientific papers that have dealt specifically with this issue on the example of Serbia.

Investment flows themselves are a factor of growth and development of the economy, regardless of their internal or external origin (Kalaš, 2015). Thus, natural capital's investment and maintenance should be considered to avoid economic depression and breakdown arising from depletion of natural capital, considering that the consumption of natural capital in economic activities is faster than its recovery, in ecological system (Zhonghua & Yu, 2011). Municipal waste management investments contribute mainly to the effects in the field of environmental governance, economic and social aspect of sustainable development (Mesjasz-Lech, 2014). Any pollution of nature will have an effect on the sustainable development of the country, i.e. as sustainability accomplishments of current manufacturing technology could be imperilled by individualisation trend as variability in environmental impacts increases (Briem et al., 2019). Investments needed to improve municipal waste collection and transportation services can be financed partially or entirely from the private sector (European Bank for Reconstruction and Development, 2018). Manufacturing sector is one of the largest waste generators. In addition to environmental issues, such as waste, economic issues must be taken into account in this sector, such as quick ratio and sales growth which have significant positive impact on profitability of manufacturing companies (Dakić & Mijić, 2020).

A group of authors (Nunes et al., 2007) conducted a study of the impact of investments on the construction and demolition waste generation, in the recycling centres of Brazilian municipalities. The results revealed that under current market conditions, construction and demolition waste recycling centres are not financially attainable, based entirely on sales revenue. Meanwhile, under the same market conditions, the recycling centres could be economically attainable in public sector. Another group of authors (Huang et al., 2014) examined the relationship between investments and waste generation, especially food waste, on the example of 100 communities in Shanghai, China. The authors concluded that, despite the state providing large financial support for investments in waste management – about 1.37 million Yuan per district, that is not enough. Public investments are not enough on their own, they cannot be efficient enough because of a traditional lack of rigorous use of data, clarification of roles, and supporting enforcement legislation, thus, private investments in waste management are necessary. Researchers (Cui et al., 2020) have addressed the issue of public-private partnerships in the waste-to-energy incineration industry in China. The results showed that public-private partnerships in the waste-to-energy incineration in China are currently in a phase of rapid expansion. However, the quality and quantity of municipal waste, sustainable development question and the



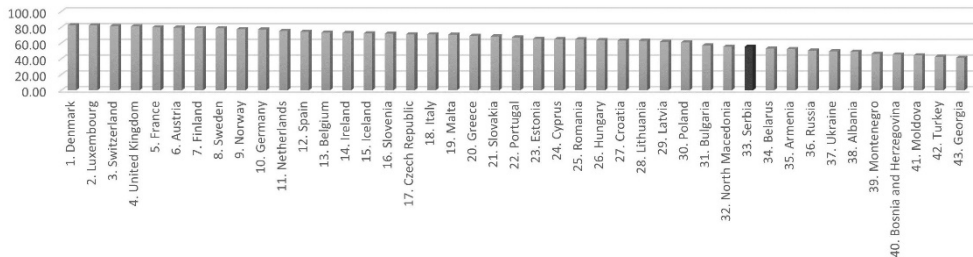
emerging public opposition are the main challenges in sustainable and healthy development of public-private partnerships in the waste-to-energy incineration industry in China. Investment in municipal waste management has begun to grow in India (Appasamy & Nelliya, 2007), however, municipal officials and the public are not aware of the magnitude of the costs involved or how to finance those expenditures and investments. Therefore, each urban local authority must develop a financial plan based on its own needs and requirements, in order to improve the quality of the urban environment for its citizens.

Agyapong (Agyapong, 2017), in his work, dealt with the issue of e-waste management. He used a review of documentation to assess the approach to financing e-waste proposed by the Ghanaian government. As a product of this study, an alternative financing model has been proposed – encouraging the participation of both private and public, as well as domestic and foreign investments. It is expected that such investments will promote the purchase of the necessary e-waste management technology. Another study highlighted the importance of public-private partnerships in financing waste management (Badu et al., 2015). Research has indicated a growing transition from the government supply of sanitary resources to a demand-side approach of private provision, and potential tools have also been proposed to improve the financing and delivery of sanitary infrastructure. Also, a group of authors from Portugal (Maia et al., 2013), among other things, proposed in their work recycling materials in the textile and clothing industry as an alternative to satisfy consumer demand. Thus, another group of authors (Hora et al., 2016) explores recycling as a waste treatment and suggests product modularity as a solution. Product modularity can facilitate product upgrades and recyclability, and thus, promote the adoption of sustainability clusters such as circular economy and longevity.

## **2. An overview of the current state of waste management and investments in environmental protection in Serbia**

When it comes to the state of the environment, in most international rankings, Serbia is poorly ranked. For example, American University of Yale, every other year publishes an index on the state of the environment, known as Environmental Performance Index – EPI. According to the latest data from 2020 (Environmental Performance Index, 2020), Serbia is in the group of the worst ranked European countries, according to this index, on the position 33 out of 43 European countries, and with a total score of 55.20 out of 100 (Figure 1).

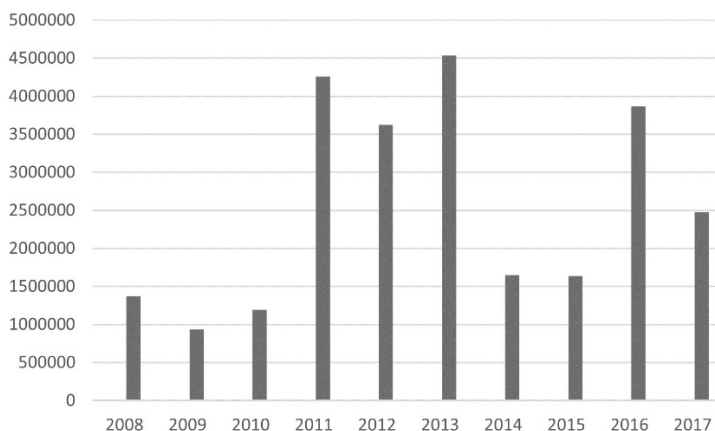
Figure 1: European countries ranking according to the Environmental Performance Index (2020)



Source: the authors' creation based on EPI Yale data

Insufficient funds for environmental protection are allocated from the budget and company funds in Serbia, and precise, comprehensive and fully comparable data on the volume of these allocations are not available, while, on the other hand, the widest range of international and domestic statistics reveals that environmental investments in Serbia are two to three times less than in the countries of Central and Eastern Europe (Fiscal Council of the Republic of Serbia, 2018). Environmental investments include investments related to environmental activities (methods, technologies, processes, equipment and their parts, etc.) in order to collect, treat, monitor and control, reduce, prevent or eliminate pollution or any other environmental degradation resulting from business (Serbian Environmental Protection Agency, 2018). Of the total amount of funds for investments and current expenditures for environmental protection, the greatest need is for investments in waste management and nature protection, so Serbia, which is currently in the process of joining the European Union, will have to allocate significantly more funds for environmental investments, in accordance with the recommendations and requirements of the European Union on that issue (Fiscal Council of the Republic of Serbia, 2018; Serbian Environmental Protection Agency, 2018). It is estimated that public investment in environmental protection would have to increase by around € 500 million (1.3% of GDP) (Fiscal Council of the Republic of Serbia, 2018). Investments for environmental protection purposed for waste management are still insufficient. Considering the publicly available data from the Statistical Office of the Republic of Serbia, the lowest value of these investments was recorded in 2009 (934,139 RSD), from 2011 to 2013 investment growth was maintained, with the highest value in 2013 (4,533,799 RSD), afterwards, 2014 and 2015 were years of significant decline (Figure 2).

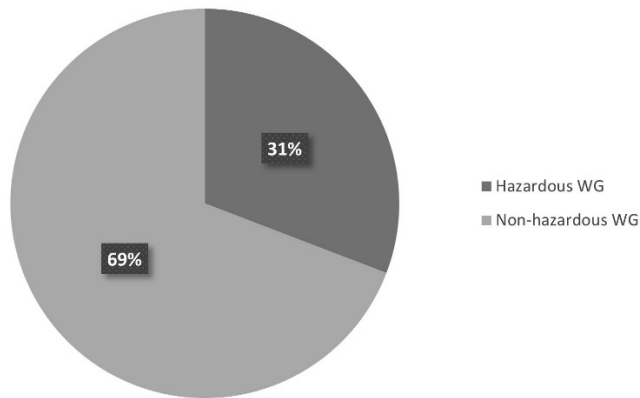
Figure 2: Total investments for environmental protection purposed for waste management, in thousand RSD



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

In Serbia, on the territory of 114 local self-government units, public utility companies dispose of waste in an organized manner at 137 unsanitary landfills located in 111 municipalities, while 61 landfills do not keep any records of waste receipt and illegal dumpsites, which are beyond the control of municipal public utility companies, about 20% of MSW generation is thrown away (Serbian Environmental Protection Agency, 2020). Illegal landfills are a big problem for all municipalities because they occur almost every day, most often in rural areas, along roads, rivers or in inaccessible areas, and their exact number is not known. It can be said that they are a consequence of inadequate legislation and penal policy in the field of environmental protection. The previous waste management strategy (2010–2019) did not give the expected results; there is still a lot of waste and it is not managed adequately. Significantly fewer sanitary landfills were built than planned. New waste management strategy (2019–2024) represents the transition from the model of regional sanitary landfills to the model of regional waste management centres (separate collection, sorting, recycling and treatment of waste). The implementation of this strategy and the new legal framework on waste management is expected to create new jobs and employ more workers, which will contribute to poverty reduction, development of the "green economy" and integration of the Roma population engaged in the collection of recyclables into society (Nešić, 2010). Of the waste that is dangerous to the life and health of humans, animals and plants, significant amounts are electrical and electronic equipment, lead batteries, waste oils and waste containing oils (Serbian Environmental Protection Agency, 2020). In the total waste of the Republic of Serbia, hazardous waste participates with as much as 31%, which is quite an unenviable level (Figure 3).

Figure3: Participation of hazardous and non-hazardous waste generation in the total waste generation of Serbia



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

It can be concluded that Serbia has a problem of inadequate disposal of financial resources and insufficient allocation of funds for public environmental investments as well as insufficient private investors who are essential in the field of waste management.

### 3. Methodology, data and results

Serbia's biggest challenges in the process of European integration in the field of environmental protection include large investments in waste management infrastructure and wastewater treatment (from 5.5 to € 7 billion in the next 25 years) (Flanders Investment and Trade, 2017). Most landfills in Serbia do not meet basic sanitary standards. Serbian landfills, both "wild" and municipal, are big polluters, the so-called "environmental time bombs", because they can contain a variety of waste, both hazardous and non-hazardous. Thus, the surface layers of the soil are loaded with large amounts of waste materials that cannot be decomposed by self-purification processes, which leads to soil degradation (Ugrinov & Stojanov, 2010). With precipitation (rain, snow, etc.), water will be filtered through waste, reaching plants and animals that will be found in the human food chain, which will have negative consequences for the ecosystem and human life and health. MSW management projects recorded in the PPI database<sup>2</sup> are infrastructure projects related to public services of collection, transfer, treatment and disposal of MSW, with a minimum private sector participation of 20% and an investment size of \$ 1 million (World Bank, 2018). The public sector is not able to reduce the pile of MSW independently, and the goal is to gradually replace the public sector with the private sector in this segment of communal

<sup>2</sup> Private Participation in Infrastructure (PPI) database.

services. Given the above, it is justified to say that private investments are crucial in the waste management field.

This paper analyses the relationship between investments in waste management and municipal solid waste generation (MSWG) in Serbia in the period from 2008 to 2018. The time frame is determined based on the availability of data. All necessary data were taken from the official website of the Statistical Office of the Republic of Serbia and the World Bank. In order to analyse the mentioned relationship, a multivariate linear regression model was applied (equation (1)):

$$\ln(\text{MSWG}_{it}) = \beta_{0i} + \beta_{1i} \ln(\text{GDP}_{it}) + \beta_{2i} \ln(\text{InvWM}_{it}) + \beta_{3i} (\text{UPOP}_{it}) + \varepsilon_{it} \quad (1)$$

where:  $i$  ( $i = 1, 2, \dots, m$ ) is location index (country, region, etc.);  $t$  ( $t = 1, 2, \dots, n$ ) is time index; MSWG is a dependent variable, expressed in thousands of tons; GDP is Gross Domestic Product used as a proxy of economic development of the country, expressed in a constant unit of domestic currency (RSD); InvWM are investments in waste management, expressed in thousands of RSD; UPOP is urban population of the Republic of Serbia, expressed as a percentage of the total population;  $\beta_0$  is a constant;  $\beta_1$  is the regression coefficient that stands next to the predictor GDP;  $\beta_2$  is the regression coefficient that stands next to the predictor InvWM;  $\beta_3$  is the regression coefficient that stands next to the predictor UPOP;  $\varepsilon$  is the measurement error. In addition to InvWM as a dependent variable, both GDP and UPOP were taken as independent variables, too, given the significant impact they have on MSWG. All data were transformed into natural logarithms to reduce the impact of data fluctuation and heteroskedasticity (Shen et al., 2020). IBM SPSS Statistics 25 software package was used for statistical data processing.

Table 1 represents the descriptive statistics of variables for Serbia, while Table 2 represents the descriptive statistics of the regression output.

Table 1: Descriptive statistics

Descriptive stat.	MSWG	GDP	InvWM	UPOP
Mean	17.59	29.09	14.61	4.01
Std.	0.31	0.05	0.58	0.01
Min	16.92	29.04	13.75	4.00
Max	17.88	29.19	15.33	4.03
N	11	11	10	11
Valid N	10			

Source: SPSS analysis output, the authors' interpretation

Table 2: Descriptive statistics of regression output

R	0.99
R <sup>2</sup>	0.97
Adjusted R <sup>2</sup>	0.96
Std. error	0.06
N	10

Source: SPSS analysis output, the authors' interpretation

Given the coefficient of determination ( $R^2$ ) which is a measure of “explained variation”, it can be concluded that 97% of the total variation of MSWG is explained by regression. The standard error as a measure of “unexplained variation” is 0.06.

In order to examine the validity of the entire regression model (1), the F-statistics was applied (Table 3), while in order to examine the individual utility of independent variables in predicting the dependent variable, the t-test was applied (Table 4).

Table 3: F-test

Model	F	Significance
Regression	72.99	0.000

Source: SPSS analysis output, the authors' interpretation

The regression model is statistically significant at the significance level  $\alpha = 0.05$  due to a very small p-value ( $0.000^3 < 0.05$ ), and the null hypothesis is rejected because there is a regression dependence between the observed variables.

Table 4: Regression coefficients and t-test

Model	B	t	Significance
Constant	11.52	0.53	0.61
GDP	-5.72	-5.29	0.002
InvWM	0.24	5.67	0.001
UPOP	42.10	9.39	0.000

Source: SPSS analysis output, the authors' interpretation

It can be concluded that for all predictors it is possible to reject the null hypothesis because their p-values are less than the significance level 0.05. These variables are individually useful in predicting the dependent variable MSWG. The model predicts that an increase in GDP by 1% will lead to a decrease in MSWG by 5.72 in tons; then, it is also predicted that an increase in InvWM by 1% will lead to an increase in MSWG by 0.24 in tons, increases the MSWG by 42.10 in tons, assuming that the other variables in the model are fixed.

After the obtained results, the regression equation (1) can be expressed in the following form:

$$\ln\text{MSWG} = 11.52 - 5.72 \ln\text{GDP} + 0.24 \ln\text{InvWM} + 42.10 \ln\text{UPOP} + \varepsilon \quad (2)$$

It turned out that GDP has a negative impact on waste generation, which is good because it says that there are enough financial resources available to invest in waste management infrastructure and to reduce the waste. From 2014 to 2018, Serbia recorded a constant significant increase of GDP per capita and has sufficient funds for the MSW reduction, however, these funds are not adequately managed, given that investments in waste management have no effect in waste reduction. The problem may be insufficient allocation of funds for public environmental protection investments, as well as insufficient

<sup>3</sup> The value is not zero but higher than it, but it is so small that the SPSS program displays it as 0.000.

private investors. Urbanization has also increased the amount of waste in Serbia, so it is inconceivable that such a country, with a relatively small population, disposes of over 2 million tons of waste annually, while at the same time waste management is not at an enviable level.

## Conclusion

Serbia has a problem establishing an effective waste management system. Most landfills in Serbia do not meet basic sanitary standards and can often contain waste that is dangerous to human, animal and plant life and health, and recyclable waste is often dumped. Despite the adoption of the new Waste Management Strategy, Serbia continues to struggle with environmental problems, and a lack of social awareness and insufficient investments in environmental protection are possible causes of these problems.

There is an increasing number of "wild" landfills for which it is not possible to determine the exact number because they occur almost every day, and the outbreak of fires and even explosions is not a rare occurrence at such landfills. The reason for frequent unsanitary landfill fires is that methane, a poisonous gas that is easily flammable, is released, and one of the major consequences is air pollution. Data on the exact costs and sources of waste management financing in Serbia are given only on paper, i.e. new Waste Management Strategy, while the funding implemented in practice does not match what was planned in the strategy. The government collects a large part of the funds from environmental taxes and fees; however, these funds are not returned into the environmental protection system and waste management system, both at the local and national level.

The conclusion is that Serbia must work on raising the awareness of the citizens themselves about the importance of preserving the environment and proper waste disposal, but there must also be the government support to invest "green" money in solving problems in the field of environmental protection, as well as introducing stricter legislation and penal policy in this area. Furthermore, the recommendation to future researchers in the field of environmental economics is to put more emphasis on this so important but neglected linkage between investments and waste management, and to produce more scientific research on this issue in Serbia.

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**Прегледни рад**  
Review article

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# Financial malpractice as a destabilization factor of real financial reporting

## Финансијска малверзација као фактор дестабилизације реалног финансијског извештавања

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**Abstract:** In the text of this scientific research we pointed out the natural correlation between the phenomenon of undertaking manipulative actions on financial and accounting reports by corporations, in circumstances of intensification, acceleration, as well as multiplication of fiscal pressure by the representatives of the management at the macroeconomic level. Also, with explications and scientific conclusions, we pointed out the destabilizing moments of consistent implementation of the principles of corporate governance, particularly in the circumstances of actual resorting to the use of different techniques of financial malversations by corporations or microeconomic entities as well as by individual households, because, in the etymological sense, they are also accepted as microeconomic subjects. At the same time, with the technique of optical laser guidance, we marked economic barriers and in the constellation of the subject matter without tendentious finger-pointing at individuals. Exclusively, using the technique of criticizing the contaminated state, the detection of neuralgic points of inhibition of optimal economic flows was performed, analysed through the prism of the need to respect the principles of corporate management.

**Keywords:** financial statements, manipulative accounting, evasion, entropy.

**JEL classification:** M41

**Сажетак:** Текстом научног истраживања из наслова указали смо на природну корелацију између феномена предузимања манипулативних радњи на финансијско – рачуноводственим извештајима од стране корпорација, у околностима интензивирања, акцелерације, као и мултипликације фискалног притиска од стране представника менаџмент естаблишмента, на макроекономском нивоу. Такође, експликацијама односно научним конклузијама указали смо и на дестабилизирајуће моменте консеквентног имплементирања принципа корпоративног управљања, управо, у околностима de facto, прибегавања употреби хетерогених техника финансијских малверзација од стране корпорација, односно макроекономских субјеката, као и од стране индивидуалних домаћинстава, јер се она, у етимолошком смислу, такође прихватају као макроекономски субјекти. Симултано, техником оптичко–ласерског навођења, означили смо економске баријере, а у констелацији предметне проблематике, без тенденциозног упирања прстом на појединце. Искључиво, техником критиковања контаминираниг стања, извршена је детекција неуралгичних тачака инхибирања оптималних токова економије, анализирано кроз призму потребе респекта принципа корпоративног управљања.

**Кључне речи:** финансијско извештавање, манипулативно рачуноводство, евазија, ентропија

**JEL класификација:** M41

## **Introduction**

Human consciousness, which is related to current analysis, and, simultaneously, specific per se, business consciousness, today, in the form of inherency, has unlimited value. The decision-making process in general, and in particular business-active provenance, is de facto determined by the quality of both human and corporate consciousness. Any, that is, every process, observed through the context of plausible and optimal functioning, i.e. continuity of implementation, with respect to the logic of the laws of nature, is long-lasting; therefore, in a strategic sense, exclusively in the circumstances of fulfilling the condition of mutual, i.e. multilateral satisfaction. Time, as a unity of position and moment, with simultaneous studious reflection on the advantages or disadvantages on one hand, as well as the chances vs. risks on the other hand, through the context of any or each individual case, is the only guarantee of the presumption of quality.

In particular, by scientific methods, first of all analysis vs. synthesis, then induction vs. deduction, as well as comparison of desktop derived data, with complementary explications, current research, we will confirm or refute the hypothesis about the existence of correlation in general, and then, also, direction and intensity of reaction of microeconomic subjects to economic policy measures, from the sphere of macroeconomic management. The determined scientific hypothesis implies, as we assume, another causal-consequential scientific hypothesis, that is, the fact that the initial reaction of microeconomic subjects will actually cause sophisticated feedback behaviour on the part of the creator of the business environment. The aim of this research is, in the circumstances of confirming hypotheses, at least in the form of striving for "panacea", which, is de facto true in practice, to expose the expediency ratio for mutual respect of needs and possibilities, regardless of economic factors, micro or macro. There is also, a consideration of a symptomatic provenance of whether affected legal entities, on the path of permanent market behaviour, can and/or must be exclusive, either in terms of severity and discrimination, or in terms of selectivity and preference. Also, in the context of more sophisticated thinking, whether the market, by vocation, must be of ruthless provenance, i.e. function according to the principle of extermination of competing corporations on one hand, or enable the implementation of recognized elements of monopolistic behaviour, on the other hand.

### **1. Fraud indicators in financial reports**

False financial reporting, in its serious form, contributes to the devastation of the use value of financial and accounting reports, either through the aspect of direct use of information, which is incorporated in them, or as an information base for a complex analysis of corporate performance. If it is based on erroneous information, then a correctly performed analysis of financial and accounting reports will, in fact, not be valid. In the circumstances of non-existing accounting rules, a portal is opened towards a manipulative space of experimentation, in the form of heterogeneous abuses of financial reports (Savić, 2016, p. 109). In such circumstances, it is recommended to preventively review the quality (validity) of financial and accounting reports. In that sense, it is desirable to have a set of warning indicators, the movement of which can signal the presence of quasi-financial reporting. It is

plausible, in the context of the suggestion, to pay more significant attention to fraud indicators. The management structures, especially internal auditors, must notice these signals, and investigate any circumstances that may indicate potential fraud. Thus, active fraud investigative practices by manufacturing companies will act as a deterrent to fraud in the future as staff will be aware that any financial fraud will be investigated and likely to be detected (Okoye & Ndah, 2019, p. 113).

One of possible classifications of warning indicators of a fraud could be presented:

1. Factors that contribute to and allow fraud are: failure to record business transactions, which contributes to the absence of liability; absence of comparing existing assets with recorded amounts; conducting a business transaction without proper approval; non-application of prescribed controls, either due to the lack of, or due to the presence of incompetent staff; lack of computer expertise with supervisors; the ability to avoid controls using computer programs.
2. Signals that warn of the danger of fraud are: constant change in the number of employees; low employee morale; increasing the number of customer complaints; worsening of the revenue trend when the business, or organization as a whole, is doing well; the existence of an audit correction of a significant scope; write-offs of stock shortages without attempting to determine the cause; unrealistic anticipations regarding performance; rumours of conflict of interest; use of procurement contracts from, exclusively, one source (Irvin, 2014, p. 445).
3. Alarm signals at the organizational level are: unusual rapid growth of profits, especially in relation to the growth of competition; financial results, which are significantly better than those achieved by the competition, although there are no significant distinctions in business; unexplained changes in trends, or relationships in the financial reports; accounts or businesses located in "tax havens", without good business logic; decentralized operations with a weak system of internal reporting; revenue growth combined with lack of cash; over-optimistic, public announcements about future growth; too high debt ratio, or existence of difficulties in debt repayment, presence of business transactions at the end of the accounting period, which are complex, unusual or large-scale, non-application of the code of ethics of the organization; significant business transaction with related parties outside the normal course of business, potential short-term liquidation of firms, the existence of business arrangements which are difficult to understand and whose practical implementation in the corporation is visible.

Thus, the auditor's responsibility to obtain reasonable assurance that the financial statements do not contain intentionally generated irregularities and misstatements is a key to the independent audit of accounting fraud (Vlaović-Begović & Tomašević, 2016, p. 99).

Exposure to risk, through the prism of manipulation in financial investments, implies the attitude from three broad aspects of activity, modern business entities such as:

- Corporate culture;

- Method of assessing the elements of financial statements;
- The manner of exercising the right to choose in the process of financial reporting (Golden et al., 2006, p30).

The practice so far has shown that most manipulations in the financial statements are realized by manipulating expenses and income in the Income Statement and by manipulating liabilities and assets in the Balance Sheet. (Cvetković & Petković, 2017, p. 317).

## **2. Financial malpractice through the prism of income statement**

Income statement, as one of the essential financial and accounting reports, provides information on the success (profitability) of the company by presenting the realized income from corporate expenditures in a certain educational period. Its rationality is reflected in the fact that revenues versus expenditures are shown for a certain period of time, from which their difference is implied, in the form of profit versus loss, with significance to the observed period as well. The degree of reliability of financial and accounting information, incorporated in the income statement, starts to devalue due to financial malversations of balance sheets of profit and loss. Financial malversations of balance sheet items are systematized into two groups:

- false increase in income - frequent, with the intention of increasing profit, i.e., hiding losses;
- false reduction in income - frequent, with the intention that the income will not "bounce" too much above the previous, and especially the next accounting year, because too high "bouncing" in one year can create the impression of decline in the next year which may further reflect a decline in share prices, regardless of realized profits. For this reason, managers tend to show steady business growth rather than large revenue fluctuations

The most common strategies for false revenue increases are: double-entry of identical customer invoices; issuing fictitious invoices; ex ante revenue recognition; inflating revenues and substituting revenues from reserves. Revenue reduction can be carried out in addition to allowed and unallowed techniques which include: failure to issue invoices for permanent deliveries at the end of the accounting period; prolonging income in various ways; "black market sale"; not billing partially realized services; transfer of income to the next year, etc. Influence on the amount of net assets and profits by management of enterprises is more often performed through financial embezzlement on balance sheet income positions than on expenditure positions, as it is confirmed by the empirical studies. The tendency to show higher revenues in relation to the realized ones is detected in cases of management of the enterprises that record a constant profit propulsion, a low ratio of book value to market value as well and enterprises for which external analysts forecast revenue levels. Manipulative activities with balance sheet positions of income in the income



statement, include: premature recognition of income from sales, increase in interest income, involvement of non-business (extraordinary) income; dealing with loans as with income from sales, swap transactions (substitution of tangible goods); non-confrontation of income and expenses (Jones, 2011, p. 46). According to the interpretations of the International Financial Reporting Standards, the income is confirmed in the circumstances of the delivered goods, i.e. invoicing, as well as in the circumstances of the concluded agreement, that, until the goods are taken over, they remain in the seller's warehouse. Likewise, “[comparison of] income vs. expense, which relates to an identical business transaction, or other business event, is recognized simultaneously, and this process is usually referred to as juxtaposition of income and expense” (International Financial Reporting Standards: IAS 18 - Revenues, 2003). We also systematize financial malversations of balance sheet positions of expenditures into two groups:

- false increase in expenses – with the intention of reducing profit, and consequently, income tax, as well as to burden the current period with expenses from the next period, in order to relieve the next period and increase the income in the current year, to increase the revenues from the following year by creating latent reserves.
- false reduction of expenses - with the intention of avoiding showing losses, hiding losses or increasing profits, in order to obtain managerial bonuses.

Most often, accounting procedures of false increase of expenses include: reporting bills for private expenses of the management staff as the expenses of the corporation; reporting fictitious expenditure amounts; aggressive liabilities write-offs and assets write-offs; omission of cost allocation; receiving invoices for unperformed services from corporations which are responsible for recognizing higher revenues in their books; increase in depreciation costs and burdening provisioning costs beyond normal limits for non-existent risks. Accounting procedures for false expenditure reductions frequently include: reduction of depreciation costs; removal of current expenses from the profit and loss account and their capitalization; transfer of current expenses to accruals; termination of posting of suppliers for expense accounts and deferral of expenses from the current business year. The results show that LDM is very effective in reducing risk if financial abuse is committed, although it may prove undeniable because more resources are needed to effect such a system that reduces the amount of help that will reach the target people (Musah et al., 2018, p. 148). The management of the corporations often manipulate the balance sheet positions of expenses in the income statement with the intention of recording the lowest possible current expenses, with a simultaneous, indirect representation of higher profit of the corporation. Furthermore, managers potentially manipulate expenses in order to avoid loss in business because any drop in profits and going to the loss zone, for the corporation, de facto, means a possible increase in interest rates on loans as well as a possible loss of current and future investors, which is a possible reduction in the number of employees. There are also examples of such corporations, which intentionally increase certain items of expenditure, in the manner of transferring future expenditures to the current accounting period. The basic motive for the explicit structure of behaviour is found in maintaining the current level of business results in order to avoid "sharp" evaluations in

profit or in order to reduce the amount of profit at the end of the accounting year so to reduce or to completely evade the profit of the corporation. Malversations are a broader concept in which, as a subclass or subgroup, there are criminal acts in the financial statements that are only interesting for the theory and practice of auditing, due to the negative impact they may have on the financial statements (Petković, 2010, p. 9).

### **3. Financial malpractice through the prism of balance sheet**

Forms of manipulative financial activities on balance sheet positions within the balance sheet, as a relevant financial accounting report, most often include: overestimation of receivables from debtors; manipulation of stocks of materials, goods and final products; overestimation and underestimation of obligations; absence of records of liabilities; etc. Analysing tangible and intangible assets, the management of the corporation achieves the impact on their value through improper implementation, i.e. abuse of the rules for activating expenditures, made in correlation with the subject's assets, as well as by overestimating and underestimating the residual value of assets, their lifespan, and the choice of write-off method. Activation or capitalization of expenses, which arise in correlation with tangible and intangible investments, is a procedure by which the incurred expenses are shown as an asset in the balance sheet. Capitalization of expenditures per se is not an instrument for fraudulent activities through financial - accounting reports. Activation of subsequent expenditures in fixed assets, interest costs (financial expenses), investments in development costs as prominent examples of expenditures – the subject of capitalization becomes an instrument of fraud, if the conditions for capitalization prescribed by the standards haven't been fulfilled. Explicit options of influencing the business (financial) result against the capital of the corporation by overestimating assets and underestimating liabilities are potentially the cause of a lower or higher level of devastation, particularly, the expressive power of the balance sheet. Simplified (non-)behaviour, in fact, generates latent losses, and balance sheets, burdened with latent losses, trace the activities of the corporation's management structures towards making bad business decisions. Most often, the objectification of high, latent losses is a signal of the impending entropy (disintegration of the business system) of the corporation.

In particular, when evaluating fixed assets, management structures and accountants use the “assessment” method (Malinić, 2009, p. 53), with the intention of achieving a perceived picture of financial position and corporate success. The constituent of the corporation's business performance indicator of inherent importance is inventory. Success compared to overall business of the corporation are determined by proper, i.e. efficient inventory management. Validation of inventories of materials can be used to perform fraudulent activities in the balance sheet and in many corporations inventories constitute a significant part of assets. Values are manipulated more often than stocks because they are relatively easy to detect. Corporations for which a sound financial position is characteristic, respecting all relevant ratio indicators which lead to such a conclusion, are de facto able to service obligations according to creditors respecting the currency date clause, while difficulties in settling obligations indicate problems in the business of the same. Certain liabilities, by their nature, indicate valuations particularly on balance sheet positions in the

balance sheet which implies an increase in the value of assets. However, liabilities which arise in addition to the simultaneous occurrence of expenses, will imply tangential evaluations both in the structure of the balance sheet and in the structure of the income statement. Susceptibility to manipulative actions is higher in correlation with liabilities if fraudulent activities can extend to both representative balance aggregates.

Fraudulent actions with property (real estate, machines, devices, equipment, land, long-term plantations, basic herd, etc.) are mainly based on overestimation or underestimation of its value. Financial malversations with assets are mainly due to ex ante reduction of certain costs (depreciation) or presenting it in the balance sheet as valuable as possible, with the intention of misleading future investors. Understanding the process of intangible assets is the basis of the managerial decision process (Petković et al., 2020, p.10).

#### **4. Financial malpractice through the prism of cash flow reports**

Cash flow reporting enables the analysis of a corporation's performance from the aspect of a diametrically different perspective in relation to the balance sheet and income statement. Cash flow reporting is in the function of assessing the corporation's exposure to financial risks, and more in-depth analysis makes it possible to place it in the function of detecting early warning signals about the corporation's financial position. It is definitely possible to reveal the effects of certain accounting policies with the help of subject, financial accounting report and consequently to reveal the quality of accounting profit from the income statement. Financial reporting according to the cash basis of accounting, in addition to the cash itself, includes cash equivalents that primarily serve to settle short-term cash liabilities (Andrić & Vuković, 2018, p.53). The explicit circumstances make the statement of cash flows particularly plausible for detecting the eventual presence of creative (manipulative) accounting practice, which is always accompanied significantly by high risk.

There are two grounded methods for manipulating operational activities in cash flow reports:

1. Maximizing cash incomes based on business activities – when the corporation involves incomes from the sale of assets in cash incomes based on business activities in addition to incomes from business transactions. By showing as many incomes as possible, as well as incomes from business activities, the corporation wants to show the best possible business results;
2. Minimizing cash outflows based on business activities are circumstances in which corporations tend not to show as many outflows as possible based on business activities or to transfer them to outflows based on investment or financial activities, by which they expand everything that is considered to be the outflow, from investment and financial activities, tending to present the corporation as successfully as possible in this way.

Empirical research points out four essential methods of financial fraud on the balance sheet items of a corporation's cash flow statement:

- Transfer of cash inflows based on financial activities to inflows based on business activities;
- Transfer of cash outflows based on business activities to outflows based on investment activities;
- Inflating cash flows based on business activities using acquisitions either by realizing a segment or the entire corporation;
- Increasing cash flows from business activities using additional or "auxiliary" activities (Schilit & Perler, 2010, p. 190).

The set of magic tricks, under the unified name "Robin Hood", is the most appropriate actual concept of financial manipulation through the prism of cash flow reports, and by the management structure of the corporation. In general, "poor" parts are constituted by cash flows from business activities, which investors analyse more deeply, and "richer" parts are filled with cash flows from investment and financial business activities. The share of institutional investors on the stock exchanges of developed countries is about 60%. (Doğan, 2020, p. 41). By the arrangement of potential, explicit form of financial malversation activities, the general premise manipulates the conclusion, where corporations, i.e. their management structures, have at their disposal a "wide range" of possibilities or transfers of certain cash inflows into operating activities or transfers, certain cash outflows from business to other activities.

## **5. Financial malpractice through the prism of taxes**

Frequently, the reason for financial manipulation through the aspect of taxes, as well as fraudulent activities in financial reports, is manifested through tendentious payment of reduced income taxes, achievable either by reducing revenues or increasing costs which lead to reduced realized profits. Tax evasion is most often a means of achieving personal goals and at the same time higher personal earnings of the perpetrator of fraud. In the USA and in the countries of the European Union, the tax authorities hire additional auditors with the goal of better control of tax returns and prevention of tax evasion and these are most often forensic accountants.

Non-payment or tax avoidance (a phenomenon called evasion) is analysed through the prism of two aspects: legal, i.e. vs. plausible tax evasion; illegal i.e. punishable tax evasion. The full use of all possible forms of tax reduction approved by the law is particularly the mantra of legal tax evasion. Evasion, on the other hand, represents non-payment of legally determined tax obligations. Tax evasion differentiates the following types:

Double bookkeeping - one book is shown to the tax authorities, and the actual turnover is recorded in the others;

- Unreported work, which is paid in cash and the amounts of which are not included in the tax return; it is not a sin to work part-time and earn additional income but that income must be reported to the state;
- Giving compensation in kind or in return as the original form of exchange between people (barter). Such transactions should be reported to the tax authorities; however, they are subject to tax;
- In some countries, even tips have to be reported to the tax authorities and taxes have to be paid for them; however, it is very difficult for the tax authorities to track down this type of income because only the recipient knows how much money he has received;
- Payment for goods or services in cash and not through payment transactions, because it is difficult for the tax authorities to disclose all payments for goods or services which were made in cash and not through payment transactions.

In fact, the 'Maginot line' is thin between tax avoidance and tax evasion. In a given context, namely, any tax evasion can relatively easily transfer (i.e., slip) into a zone of tax evasion. Most often, economic entities manipulate: corporate income tax, then, individual income tax, value added tax, employee salary tax and property tax. We have concluded that most of the fraudulent actions, through financial and accounting reports either directly or indirectly, point to the phenomenon of evasion, that is, undertaking activities regarding the illegal avoidance of servicing tax levies. Fraud in income or expenditure led to a decrease or increase in profits and thus to a decrease or increase in taxes. The presentation of lower levels of income or higher levels of expenditure in the financial and accounting reports of corporations tends towards reduced profit, i.e., less paid money as income tax. The amount of money paid as tax on a corporation's property is determined by techniques of direct influence, that is, through the prism of heterogeneous forms of manipulating the value of the property in the balance sheet. With the intention of paying lower levels of property taxes, corporations generally tend to implement lower asset values.

Frequently, fraudulent activities through the prism of all forms of taxes are represented in the following way:

- conscious non-recording or omission of a critical group of revenue items;
- excessive implementation of tax incentives;
- double tax bookkeeping;
- realization of falsified entries in business books, both on the side of expenses and on the side of income, as well as on the side of assets and liabilities
- reporting personal expenses of an individual as corporate expenses – socialization of expense, as a phenomenon of negative provenance;
- implementation of illegal tax breaks;

- various forms of money laundering (Albrecht et al., 2009, p.571).

Financial and accounting reporting of corporations (companies, banks, insurance companies, institutions, etc.) is aimed at both internal and external stakeholders. Internal financial statements are primarily used by the corporation's management and it is the one which directly determines the degree of their reality and can influence it. Therefore, it is logical that internal financial reporting should be realistic in order to have a realistic basis for making business decisions. Individuals or management may be involved in committing an act of fraud. In the case of natural persons, accounting fraud would generally involve theft of property (Chimonaki, 2021, p. 59). External financial statements are used, among other things, to calculate the corporation's tax liabilities as well as to make business decisions by potential investors vs. creditors. There is a "natural" need for the corporation's management to harmonize external financial reports with the corporation's needs (to pay less taxes, to attract new investors, etc.). Researchers suggest that trained professionals such as professional forensic accountants should conduct an investigation, where there is sufficient evidence to do so. The provisions of the rules and government restructuring of corruption agencies should be applied for better performance (Ehioghiren, & Atu, 2016, p. 267).

## **Conclusion**

Members of the management structures, at the macroeconomic level, are undoubtedly elected for the basic reason and that is the management of all resources of any country or each country by creating a business environment, i.e., generating optimized (in mathematics known as asymptotic approach to the target point) measures of economic policy which will, continuously, influence microeconomic entities in an atmosphere of positive provenance. Although, at first glance it seems complex, the definition is nevertheless extremely simplified. Different representatives or economic policy or macro level makers of, with all due respect, either temporary or strategic time dimensions, should in fact contribute to creating a positive business climate, metaphorically expressed as "runways" from where microeconomic entities, that is, corporations take off and land. Corporations, by vocation, certainly pay various forms of fiscal obligations, particularly with the intention of optimal functioning of macroeconomic entities, which will, according to the feedback function system, by creating an optimally favourable business climate, in fact, achieve motivational influence on microeconomic entities. Based primarily on explicit desktop scientific research, we can indisputably confirm a significantly high degree of correlation, then direction, as well as a highly sophisticated but also propulsive level of response of microeconomic entities (corporations), namely to the generated and implemented economic policy measures from the domain of macroeconomic management. A rhetorical question arises, taking into account the explicit arrangement in the relation: fiscal servicing – optimization of the macroeconomic environment – significantly motivated corporations, whether today, after decades of devastation of a given law of functioning of a causal-effective chain, macromanagement acts simultaneously i.e. automatically, having lost touch with the purpose of their existence and thus criticism of the academic environment is necessary, precisely with the intention of returning to the roots of the reasons for its

inauguration. Considering the fake dynamic and turbulence of relations, regarding a given relationship, rhetoric also requires finding a rational answer for whether, based on the above scientific research when there are extremely unreasonable fiscal levies, cut by government officials, it will be justified avoidance or illegal non-payment of the taxes to the treasury. There is even the current situation with a declared pandemic of the virus, which marginally, on the already existing factors, created a whole spectrum of new inhibiting ones on the energy flow of economic activities, that is, on the side of microeconomic entities vs. corporations, and, above all, with private ownership. Instead of a more flexible vs. differently set concept of business philosophy, on the side of macromanagers and with the aim of bringing to the surface otherwise stumbled economies, fiscal pressure on lower and lower economic entities and even on households is increasing.

A spiral of mistrust is created. By avoiding economic policy, in the competence of which the relaxation of microeconomic subjects would be more significant, and analysed through the prism of fiscal levies, at some point respecting the laws in nature, a turning point will occur, called entropy, as a complete economic collapse. With current explications, that is, research, simultaneously criticizing the phenomenon of contaminated economy, we want to point out the urgent need for revitalization, not exclusively economic, but holistic consciousness. With the presented considerations, we did not justify any economic or business entity, macro or micro or individual households, their reactions to certain moves of others, but there was a natural human need to point out more than present general problem, that is, pointing to potential getting out of the economic mire.

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## Reviewers of the journal “Anali Ekonomskog fakulteta u Subotici” in 2021

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u Vrnjačkoj Banji

# Техничко упутство за форматирање радова

## Цитати и библиографија

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Рад треба да садржи следеће:

Наслов рада (не више од 10 речи) на енглеском језику.

Поднаслов (опционо) на енглеском језику.

Подаци о ауторима: име, презиме, звање и институција на енглеском језику.

Апстракт рада максималне дужине 200 речи на енглеском језику.

Кључне речи (не више од 10) на енглеском језику.

Текст рада на енглеском, максималног обима 12 страница.

Листу референци.

Формат странице: Б5.

Маргина: 2 цм свака.

Фонт: TimesNewRoman, величине 10.5 (важи и за наслове, поднаслове, називе слика, називе табела, апстракт, кључне речи итд).

Апстракт и кључне речи позиционирати одмах на почетку текста. Наслови, поднаслови, називи табела, илустрација, слика итд. треба да су нумерисани арапским бројевима.

Слике, илустрације, схеме је потребно приложити у .jpg формату (резолуције 300\*300 DPI), или у векторском облику (.wmf или .cdr) са приложеним фонтовима или фонтовима претвореним у криве.

Слике, илустрације и схеме треба да су GRAYSCALE. За текст у сликама, илустрацијама и схемама је пожељно користити фонт Arial, величине 9pt.

Литературу треба навести абecedним редом.

# 1. Листа референци

У референцама се извори (нпр. књига, чланак у стручном часопису или интернет страница) наводе довољно детаљно да читаоци могу да их идентификују и консултују. Референце се стављају на крај рада, а извори се наводе абecedно (а) по презименима аутора или (б) по насловима извора (ако аутор није познат). Више извора од истог аутора се наводи хронолошки, почев од најранијег, нпр.

Љубојевић, Т.К. (1998).

Љубојевић, Т.К. (2000а).

Љубојевић, Т.К. (2000б).

Љубојевић, Т.К., & Димитријевић, Н.Н. (1994).

**Референце иностраних аутора и иностраних институција (самом тексту и у литератури) се наводе латиничним писмом. Референце домаћих аутора се наводе ћириличним писмом, изузев наслова радова на енглеском језику или евентуално назива часописа (уколико је реч о часопису који се публикује на енглеском језику).**

## А. Часописи и остале периодичне публикације

Аутори се наводе по презимену, уз прво слово имена. Година објављивања се пише у заградама, иза којих се ставља тачка. Наслов чланка на енглеском језику пише се у *Sentence case*, односно велико слово се користи само на почетку наслова и код личних именица. Наслов часописа на енглеском језику пише се у *Title case*, односно све променљиве врсте речи се пишу великим почетним словом. Иза наслова часописа ставља се број годишта, који се пише курзивом:

Аутор, А., Аутор, Б. и Аутор, Ц. (година). Наслов чланка. *Наслов часописа*, број годишта(број свеске), странице.

### ☞ Чланак једног аутора, из стручног часописа пагинираног по свескама

Часописи који се пагинирају по свескама почињу страном 1 у свакој свесци, тако да се број свеске наводи у заградама након броја годишта. Заграде и број свеске се не пишу курзивом:

Танасијевић, В. (2007). A PHP project test-driven end to end. *Management Information Systems*, 5 (1), 26-35.

Begg, D. (2007). A PHP project test-driven end to end. *Management Information Systems*, 5 (1), 26-35.

### ☞ Чланак једног аутора, из стручног часописа пагинираног по годиштима

Часописи који се пагинирају по годиштима почињу страном 1 у свесци 1, а бројеви страница се настављају у свесци 2 тамо где се свеска 1 завршила, нпр.

Перић, О. (2006). Bridging the gap: Complex adaptive knowledge management. *Strategic Management*, 14, 654-668.

Begg, D. (2006). Bridging the gap: Complex adaptive knowledge management. *Strategic Management*, 14, 654-668.

- **Чланак два аутора, из стручног часописа пагинираног по свескама**

Стракић, Ф., и Мирковић, Д. (2006). The role of the user in the software development life cycle. *Management Information Systems*, 4 (2), 60-72.

Begg, D., и Burda, M. (2006). The role of the user in the software development life cycle. *Management Information Systems*, 4 (2), 60-72.
- **Чланак два аутора, из стручног часописа пагинираног по годиштима**

Љубојевић, К., и Димитријевић, М. (2007). Choosing your CRM strategy. *Strategic Management*, 15, 333-349.
- **Чланак три до шест аутора, из стручног часописа пагинираног по свескама**

Јованов, Н., Бошков, Т., и Стракић, Ф. (2007). Data warehouse architecture. *Management Information Systems*, 5 (2), 41-49.
- **Чланак три до шест аутора, из стручног часописа пагинираног по годиштима**

Бошков, Т., Љубојевић, К., и Танасијевић, В. (2005). A new approach to CRM. *Strategic Management*, 13, 300-310.
- **Чланак више од шест аутора, из стручног часописа пагинираног по свескама**

Љубојевић, К., Димитријевић, М., Мирковић, Д., Танасијевић, В., Перић, О., Јованов, Н., et al. (2005). Putting the user at the center of software testing activity. *Management Information Systems*, 3 (1), 99-106.
- **Чланак више од шест аутора, из стручног часописа пагинираног по годиштима**

Стракић, Ф., Мирковић, Д., Бошков, Т., Љубојевић, К., Танасијевић, В., Димитријевић, М., et al. (2003). Metadata in data warehouse. *Strategic Management*, 11, 122-132.
- **Чланак из часописа**

Стракић, Ф. (2005, October 15). Remembering users with cookies. *IT Review*, 130, 20-21.
- **Ауторизовани чланак из билтена**

Димитријевић, М. (2009, September). MySQL server, writing library files. *Computing News*, 57, 10-12.
- **Неауторизовани чланак из билтена**

VBScript with active server pages. (2009, Septembar). *Computing News*, 57, 21-22.

## **Б. Књиге, брошуре, поглавља из књига, енциклопедијске одреднице, критике и рецензије**

### **Основни формат за књиге**

Аутор, А. А. (Година издања). *Наслов дела: Велико почетно слово и у поднаслову*. Место: Издавач.

**Напомена:** Реч „место” увек означава град, али треба навести и земљу уколико град истог имена постоји у више држава.

#### **☞ Књига једног аутора**

Љубојевић, К. (2005). *Prototyping the interface design*. Суботица: Економски факултет.

#### **☞ Књига једног аутора, ново издање**

Димитријевић, М. (2007). *Customer relationship management* (6. izd.). Суботица: Економски факултет.

#### **☞ Књига два аутора**

Љубојевић, К., Димитријевић, М. (2007). *The enterprise knowledge portal and its architecture*. Суботица: Економски факултет.

#### **☞ Књига три до шест аутора**

Љубојевић, К., Димитријевић, М., Мирковић, Д., Танасијевић, В., и Перић, О. (2006). *Importance of software testing*. Суботица: Економски факултет.

#### **☞ Књига више од шест аутора**

Мирковић, Д., Танасијевић, В., Перић, О., Јованов, Н., Бошков, Т., Стракић, Ф., et al. (2007). *Supply chain management*. Суботица: Економски факултет.

#### **☞ Књига без аутора и уредника**

*Web user interface* (10. izd.). (2003). Суботица: Економски факултет.

#### **☞ Група аутора, предузеће, организација или државни орган као аутор**

Статистички завод Републике Србије. (1978). *Статистички годишњак Републике Србије*. Београд: Министарство за комуналне и социјалне службе.

#### **☞ Збирка**

Димитријевић, М., & Танасијевић, В. (ur.). (2004). *Data warehouse architecture*. Суботица: Економски факултет.

#### **☞ Поглавље у збирци**

Бошков, Т., и Стракић, Ф. (2008). Bridging the gap: Complex adaptive knowledge management. U T. Boškovi i V. Tanasijević (ur.), *The enterprise knowledge portal and its architecture* (str. 55-89). Суботица: Економски факултет.

## **В. Необјављени радови**

### **➤ Реферат са научног скупа**

Љубојевић, К., Танасијевић, В., Димитријевић, М. (2003). *Designing a web form without tables*. Реферат саопштен на годишњем скупу Српског компјутерског савеза, Београд.

### **➤ Необјављени рад или рукопис**

Бошков, Т., Стракић, Ф., Љубојевић, К., Димитријевић, М., и Перић, О. (2007. мај). *First steps in C++*. Необјављен рад, Економски факултет, Суботица.

### **➤ Докторска дисертација**

Стракић, Ф. (2000). *Managing network services: Managing DNS servers*. Необјављена докторска дисертација, Економски факултет Суботица, Суботица.

### **➤ Магистарски рад**

Димитријевић, М. (2003). *Structural modeling: Class and object diagrams*. Необјављен магистарски рад, Економски факултет, Суботица.

## **Г. Електронски медији**

За чланке објављене на интернету важе иста упуства као за радове објављене у штампи. Наводе се сви подаци наведени у интернет извору, укључујући и број часописа у заградама.

Аутор, А., & Аутор, Б. (Датум објављивања). Наслов чланка. *Наслов интернет часописа, број годишња* (број часописа ако је назначен). Преузето са сајта <http://www.anyaddress.com/full/url/>

### **➤ Чланак у интернет часопису**

Танасијевић, В. (март 2003.). Putting the user at the center of software testing activity. *Strategic Management*, 8 (4). Преузето 7. октобра 2004. са сајта [www.ef.uns.ac.rs/sm2003](http://www.ef.uns.ac.rs/sm2003)

### **➤ Документ организације**

Економски факултет Суботица. (5. март 2008.). *A new approach to CRM*. Преузето 25. јула 2008. са сајта <http://www.ef.uns.ac.rs/papers/acrm.html>

### **➤ Чланак из интернет часописа са додељеним DOI**

За чланке у интернет часопису без DOI (идентификатора дигиталног објекта) навести URL.

Аутор, А., и Аутор, Б. Б. (Датум објављивања). Наслов чланка. *Назив часописа, број годишња*. Преузето са сајта <http://www.anyaddress.com/full/url/>

Јованов, Н., и Бошков, Т. (4. фебруар 2007.) A PHP project test-driven end to end. *Management Information Systems*, 2 (2), 45-54. Преузето са сајта <http://www.ef.uns.ac.rs/mis/TestDriven.html>.

## 2. Цитати из извора у тексту рада

### ⇒ Цитати

Уколико се извор цитира дословце, наводи се име аутора, година издања и страница са које је цитат преузет (са назнаком “стр.”). Цитат се уводи фразом која садржи ауторово презиме, а иза њега се ставља година објављивања у заградама.

По Мирковићу (2001), „Примена складишта података може да буде ограниченог карактера, нарочито ако иста садрже поверљиве податке” (стр. 201).

Мирковић (2001) сматра да „примена складишта података може да буде ограниченог карактера” (стр. 201). Какве неочекиване последице то има по обим доступности?

Уколико се у уводној фрази не именује аутор, на крај цитата се ставља ауторово презиме, година издања и број странице у заградама, нпр.

Он сматра да „примена складишта података може да буде ограниченог карактера”, али не објашњава могуће последице (Мирковић, 2001, стр. 201).

### ⇒ Резиме или парафраза

По Мирковићу (1991), ограничења у погледу употребе базе података могу бити вањског или софтверског карактера, или пак привремена или чак произвољна (стр. 201).

Ограничења у погледу употребе базе података могу бити вањског или софтверског карактера, или пак привремена или чак произвољна (Мирковић, 1991, стр. 201).

### ⇒ Један аутор

Бошков (2005) упоређује обим приступа...

Begg (2005) упоређује обим приступа...

У једном раном истраживању обима приступа (Бошков, 2005), установљено је...

### ⇒ У случају да има два аутора, увек се наводе оба имена:

У једном другом истраживању (Мирковић и Бошков, 2006) закључује се да...

### ⇒ У случају да има три до пет аутора, први пут се наводи свих пет аутора. Код наредних навода, наводи се име првог аутора, иза кога се ставља „и сар.”.

(Јованов, Бошков, Перић, Бошков, и Стракић, 2004).



Када се исти аутори наводе следећи пут, користи се име само првог аутора, иза кога се ставља „и сар.“ у уводној фрази или заградама:

По Јованову и сар. (2004), када се такав феномен јави поново, медији му обично посвећују далеко више пажње.

Када се такав феномен јави поново, медији му обично посвећују далеко више пажње (Јованов и сар., 2004).

У енглеском тексту, иза „et” у „et al.” не ставља се тачка.

### ☞ Шест или више аутора

У уводној фрази се презиме првог аутора наводи у уводној фрази или у заградама:

Yossarian и сар. (2004) тврде да...

...није релевантно (Yossarian i сар., 2001).

### ☞ Неименован аутор

Уколико дело није ауторизовано, извор се наводи по наслову у уводној фрази, или се прве 1-2 речи ставе у заграде. Наслови књига и извештаја се пишу курзивом, док се наслови чланака и поглавља стављају у наводнике:

Слична анкета је спроведена у једном броју организације које имају стално запослене менаџере базе података (“Limiting database access”, 2005).

Уколико неко дело (нпр. реч уредника у новинама) нема аутора, наводи се првих неколико речи наслова, уз годину објављивања:

(“The Objectives of Access Delegation,” 2007)

**Напомена:** У ретким случајевима кад је аутор потписан речју „Anonymous”, иста се сматра именом аутора (Anonymous, 2008). У том случају се у списку извора на крају рада као име аутора користи реч „Anonymous”.

### ☞ Организација или државни орган као аутор

Уколико је аутор нека организација или државни орган, назив организације се ставља у уводну фразу или заграде први пут кад се извор наводи:

По подацима Статистичког завода Републике Србије (1978), ...

Исто тако, код првог навођења се исписује пуни назив колективног аутора, уз скраћеницу у угластим заградама. Затим се код следећих навода користи скраћени назив:

Преглед је ограничен на градове од 10.000 становника навише (Статистички завод Републике Србије [СОРС], 1978).

Списак не садржи школе које су у претходном статистичком прегледу наведене као затворене (СОРС, 1978).

### ☞ Када се наводи више од једног дела истог аутора:

(Безјак, 1999, 2002)

- ☞ Када је **више од једног дела истог аутора објављено исте године**, наводе се са словима а, б, ц, итд. иза године издања:

(Griffith, 2002a, 2002b, 2004)

- ☞ **Два или више дела истог аутора објављена исте године**

Уколико су два или више извора кориштена у достављеном раду објављена од стране истог аутора исте године, ставке у списку референци се означавају малим словом (а, б, ц...) иза године. Мало слово се користи и код навођења извора унутар текста:

Резултати анкете објављени код Theissena (2004a) показују да...

- ☞ Уколико нисте прочитали оригинално дело, наводи се аутор који Вас је упутио на исто:

Бергсоново истраживање (поменуто код Мирковића и Бошкова, 2006)...

Овде се у списку извора наводе Мирковић и Бошков (2006), а Бергсон не.

- ☞ Кад се наводи **више од једног аутора**, аутори се наводе абecedним редом:

(Britten, 2001; Styrlason, 2002; Wasserwandt, 1997)

- ☞ Кад нема датума или године објављивања:

(Hessenberg, n.d.)

- ☞ **Код цитата се увек наводе странице:**

(Мирковић и Бошков, 2006, стр. 12)

(Begg i Burda, 2006, стр. 12)

Мирковић и Бошков (2006, стр. 12) предлажу приступ по коме “почетно гледиште...

- ☞ **Навођење појединих делова дела:**

(Theissen, 2004a, pogl. 3)

(Keaton, 1997, str. 85-94)

- ☞ **Лична комуникација, и то интервјуи, писма, интерне поруке, е-маилови и телефонски разговори**, наводе се на следећи начин. (Не уносе се у списак извора.)

(К. Љубојевић, лична комуникација, 5. мај 2008.).

### 3. Фусноте

Понекад се неко питање покренуто у тексту мора додатно обрадити у фуснотама, у којима се додаје нешто што је индиректној вези са темом, или дају додатне техничке информације. Фусноте се нумеришу експонентом, арапским бројевима на крају реченице, овако.<sup>1</sup> Фусноте на крају текста (*endnote*) се започињу на посебној страни, иза текста. Међутим, Уређивачки одбор часописа **не препоручује коришћење фуснота и завршних напомена.**

# **Technical instructions for paper formatting**

## **Citations and Bibliography**

---

### **The paper should consist of:**

Title of the paper (no more than 10 words) in English.

Subtitle (optional) in English.

Personal data of authors/coauthors: name, surname, title and Institution in English.

Abstract of 200 words or less, giving the factual essence of the article, should be written in English.

Key words (no more than 10) in English.

Text of the paper, in English, cannot exceed 12 pages.

Bibliography.

### **Guidelines for the paper format**

Type your work in a common Word Processor (e.g. MS Word).

Page format: B5.

Margin: 2 cm every

Font: Times New Roman, size 11 (use it for title, subtitle, figures, tables, abstract, key words, and so on).

Titles, subtitles, names of the tables, illustrations, figures, etc should be written in Arabic numerals.

Figures, illustrations and schemes should be enclosed in the .jpg format (resolution 300\*300 dpi) or in the vector form (.wmf or cdr) with enclosed fonts or fonts transformed in curves. Figures, illustrations and schemes should be black-and-white (gray-scale). For the texts included in figures, illustrations and schemes font Arial, size 9 pt is preferred.

# 1. Referencing Guide

The references should specify the source (such as book, journal article or a web page) in sufficient detail to enable the readers to identify and consult it. The references are placed at the end of the work, with sources listed alphabetically (a) by authors' surnames or (b) by the titles of the sources (if the author is unknown). Multiple entries by the same author(s) must be sequenced chronologically, starting from the earliest, e.g.:

- Ljubojević, T.K. (1998).
- Ljubojević, T.K. (2000a).
- Ljubojević, T.K. (2000b).
- Ljubojević, T.K., & Dimitrijević, N.N. (1994).

Here is a list of the most common reference types:

## A. Periodicals

Authors must be listed by their last names, followed by initials. Publication year must be written in parentheses, followed by a full stop. Title of the article must be in sentence case: only the first word and proper nouns in the title are capitalized. The periodical title must be in title case, followed by the volume number, which is also italicized:

Author, A. A., Author, B. B., & Author, C. C. (Year). Title of article. *Title of Periodical*, volume number(issue number), pages.

### ➔ Journal article, one author, paginated by issue

Journals paginated by issue begin with page 1 in every issue, so that the issue number is indicated in parentheses after the volume. The parentheses and issue numbers are not italicized, e.g.

Tanasijević, V. (2007). A PHP project test-driven end to end. *Management Information Systems*, 5 (1), 26-35.

### ➔ Journal article, one author, paginated by volume

Journals paginated by volume begin with page 1 in issue 1, and continue page numbering in issue 2 where issue 1 ended, e.g.

Perić, O. (2006). Bridging the gap: Complex adaptive knowledge management. *Strategic Management*, 14, 654-668.

### ➔ Journal article, two authors, paginated by issue

Strakić, F., & Mirković, D. (2006). The role of the user in the software development life cycle. *Management Information Systems*, 4 (2), 60-72.

### ➔ Journal article, two authors, paginated by volume

Ljubojević, K., & Dimitrijević, M. (2007). Choosing your CRM strategy. *Strategic Management*, 15, 333-349.

➔ **Journal article, three to six authors, paginated by issue**

Jovanov, N., Bošković, T., & Strakić, F. (2007). Data warehouse architecture. *Management Information Systems*, 5 (2), 41-49.

➔ **Journal article, three to six authors, paginated by volume**

Bošković, T., Ljubojević, K., & Tanasijević, V. (2005). A new approach to CRM. *Strategic Management*, 13, 300-310.

➔ **Journal article, more than six authors, paginated by issue**

Ljubojević, K., Dimitrijević, M., Mirković, D., Tanasijević, V., Perić, O., Jovanov, N., et al. (2005). Putting the user at the center of software testing activity. *Management Information Systems*, 3 (1), 99-106.

➔ **Journal article, more than six authors, paginated by volume**

Strakić, F., Mirković, D., Bošković, T., Ljubojević, K., Tanasijević, V., Dimitrijević, M., et al. (2003). Metadata in data warehouse. *Strategic Management*, 11, 122-132.

➔ **Magazine article**

Strakić, F. (2005, October 15). Remembering users with cookies. *IT Review*, 130, 20-21.

➔ **Newsletter article with author**

Dimitrijević, M. (2009, September). MySQL server, writing library files. *Computing News*, 57, 10-12.

➔ **Newsletter article without author**

VBScript with active server pages. (2009, September). *Computing News*, 57, 21-22.

## **B. Books, Brochures, Book Chapters, Encyclopedia Entries, And Book Reviews**

### **Basic format for books**

Author, A. A. (Year of publication). *Title of work: Capital letter also for subtitle.*  
Location: Publisher.

**Note:** "Location" always refers to the town/city, but you should also include the state/country if the town/city could be mistaken for one in another country.

➔ **Book, one author**

Ljubojević, K. (2005). *Prototyping the interface design.* Subotica: Faculty of Economics.

➔ **Book, one author, new edition**

Dimitrijević, M. (2007). *Customer relationship management* (6<sup>th</sup> ed.). Subotica: Faculty of Economics.

➔ **Book, two authors**

Ljubojević, K., Dimitrijević, M. (2007). *The enterprise knowledge portal and its architecture*. Subotica: Faculty of Economics.

➔ **Book, three to six authors**

Ljubojević, K., Dimitrijević, M., Mirković, D., Tanasijević, V., & Perić, O. (2006). *Importance of software testing*. Subotica: Faculty of Economics.

➔ **Book, more than six authors**

Mirković, D., Tanasijević, V., Perić, O., Jovanov, N., Boškov, T., Strakić, F., et al. (2007). *Supply chain management*. Subotica: Faculty of Economics.

➔ **Book, no author or editor**

*Web user interface* (10th ed.). (2003). Subotica: Faculty of Economics.

➔ **Group, corporate, or government author**

Statistical office of the Republic of Serbia. (1978). *Statistical abstract of the Republic of Serbia*. Belgrade: Ministry of community and social services.

➔ **Edited book**

Dimitrijević, M., & Tanasijević, V. (Eds.). (2004). *Data warehouse architecture*. Subotica: Faculty of Economics.

➔ **Chapter in an edited book**

Boškov, T., & Strakić, F. (2008). Bridging the gap: Complex adaptive knowledge management. In T. Boškov & V. Tanasijević (Eds.), *The enterprise knowledge portal and its architecture* (pp. 55-89). Subotica: Faculty of Economics.

➔ **Encyclopedia entry**

Mirković, D. (2006). History and the world of mathematicians. In *The new mathematics encyclopedia* (Vol. 56, pp. 23-45). Subotica: Faculty of Economics.

## C. Unpublished Works

➔ **Paper presented at a meeting or a conference**

Ljubojević, K., Tanasijević, V., Dimitrijević, M. (2003). *Designing a web form without tables*. Paper presented at the annual meeting of the Serbian computer alliance, Beograd.

### ➔ Paper or manuscript

Boškov, T., Strakić, F., Ljubojević, K., Dimitrijević, M., & Perić, O. (2007, May). *First steps in visual basic for applications*. Unpublished paper, Faculty of Economics Subotica, Subotica.

### ➔ Doctoral dissertation

Strakić, F. (2000). *Managing network services: Managing DNS servers*. Unpublished doctoral dissertation, Faculty of Economics Subotica, Subotica.

### ➔ Master's thesis

Dimitrijević, M. (2003). *Structural modeling: Class and object diagrams*. Unpublished master's thesis, Faculty of Economics Subotica, Subotica.

## D. Electronic Media

The same guidelines apply for online articles as for printed articles. All the information that the online host makes available must be listed, including an issue number in parentheses:

Author, A. A., & Author, B. B. (Publication date). Title of article. *Title of Online Periodical, volume number*(issue number if available). Retrieved from <http://www.anyaddress.com/full/url/>

### ➔ Article in an internet-only journal

Tanasijević, V. (2003, March). Putting the user at the center of software testing activity. *Strategic Management, 8* (4). Retrieved October 7, 2004, from [www.ef.uns.ac.rs/sm2003](http://www.ef.uns.ac.rs/sm2003)

### ➔ Document from an organization

Faculty of Economics. (2008, March 5). *A new approach to CRM*. Retrieved July 25, 2008, from <http://www.ef.uns.ac.rs/papers/acrm.html>

### ➔ Article from an online periodical with DOI assigned

Jovanov, N., & Boškov, T. A PHP project test-driven end to end. *Management Information Systems, 2* (2), 45-54. doi: 10.1108/06070565717821898.

### ➔ Article from an online periodical without DOI assigned

Online journal articles without a DOI require a URL.

Author, A. A., & Author, B. B. (Publication date). Title of article. *Title of Journal, volume number*. Retrieved from <http://www.anyaddress.com/full/url/>

Jovanov, N., & Boškov, T. A PHP project test-driven end to end. *Management Information Systems, 2* (2), 45-54. Retrieved from <http://www.ef.uns.ac.rs/mis/TestDriven.html>.

## 2. Reference Quotations in the Text

### ➔ Quotations

If a work is directly quoted from, then the author, year of publication and the page reference (preceded by “p.”) must be included. The quotation is introduced with an introductory phrase including the author’s last name followed by publication date in parentheses.

According to Mirković (2001), “The use of data warehouses may be limited, especially if they contain confidential data” (p. 201).

Mirković (2001), found that “the use of data warehouses may be limited” (p. 201). What unexpected impact does this have on the range of availability?

If the author is not named in the introductory phrase, the author's last name, publication year, and the page number in parentheses must be placed at the end of the quotation, e.g.

He stated, “The use of data warehouses may be limited,” but he did not fully explain the possible impact (Mirković, 2001, p. 201).

### ➔ Summary or paraphrase

According to Mirković (1991), limitations on the use of databases can be external and software-based, or temporary and even discretion-based. (p.201)

Limitations on the use of databases can be external and software-based, or temporary and even discretion-based (Mirković, 1991, p. 201).

### ➔ One author

Boškov (2005) compared the access range...

In an early study of access range (Boškov, 2005), it was found...

### ➔ When there are **two authors**, both names are always cited:

Another study (Mirković & Boškov, 2006) concluded that...

### ➔ If there are **three to five authors**, all authors must be cited the first time. For subsequent references, the first author’s name will cited, followed by “et al.”.

(Jovanov, Boškov, Perić, Boškov, & Strakić, 2004).

In subsequent citations, only the first author’s name is used, followed by “et al.” in the introductory phrase or in parentheses:

According to Jovanov et al. (2004), further occurrences of the phenomenon tend to receive a much wider media coverage.

Further occurrences of the phenomenon tend to receive a much wider media coverage (Jovanov et al., 2004).

In “et al.”, “et” is not followed by a full stop.



### ➤ Six or more authors

The first author's last name followed by "et al." is used in the introductory phrase or in parentheses:

Yossarian et al. (2004) argued that...  
... not relevant (Yossarian et al., 2001).

### ➤ Unknown author

If the work does not have an author, the source is cited by its title in the introductory phrase, or the first 1-2 words are placed in the parentheses. Book and report titles must be italicized or underlined, while titles of articles and chapters are placed in quotation marks:

A similar survey was conducted on a number of organizations employing database managers ("Limiting database access", 2005).

If work (such as a newspaper editorial) has no author, the first few words of the title are cited, followed by the year:

("The Objectives of Access Delegation," 2007)

**Note:** In the rare cases when the word "Anonymous" is used for the author, it is treated as the author's name (Anonymous, 2008). The name Anonymous must then be used as the author in the reference list.

### ➤ Organization as an Author

If the author is an organization or a government agency, the organization must be mentioned in the introductory phrase or in the parenthetical citation the first time the source is cited:

According to the Statistical Office of the Republic of Serbia (1978), ...

Also, the full name of corporate authors must be listed in the first reference, with an abbreviation in brackets. The abbreviated name will then be used for subsequent references:

The overview is limited to towns with 10,000 inhabitants and up (Statistical Office of the Republic of Serbia [SORS], 1978).

The list does not include schools that were listed as closed down in the previous statistical overview (SORS, 1978).

### ➤ When citing **more than one reference from the same author**:

(Bezjak, 1999, 2002)

➤ When several **used works by the same author were published in the same year**, they must be cited adding a, b, c, and so on, to the publication date:

(Griffith, 2002a, 2002b, 2004)

### ➤ **Two or more works in the same parentheses**

When two or more works are cited parenthetically, they must be cited in the same order as they appear in the reference list, separated by a semicolon.

(Bezjak, 1999; Griffith, 2004)

### ➔ **Two or more works by the same author in the same year**

If two or more sources used in the submission were published by the same author in the same year, the entries in the reference list must be ordered using lower-case letters (a, b, c...) with the year. Lower-case letters will also be used with the year in the in-text citation as well:

Survey results published in Theissen (2004a) show that...

### ➔ **To credit an author for discovering a work**, when you have not read the original:

Bergson's research (as cited in Mirković & Boškov, 2006)...

Here, Mirković & Boškov (2006) will appear in the reference list, while Bergson will not.

### ➔ **When citing more than one author**, the authors must be listed alphabetically:

(Britten, 2001; Sturlasson, 2002; Wasserwandt, 1997)

### ➔ **When there is no publication date**:

(Hessenberg, n.d.)

### ➔ **Page numbers must always be given for quotations**:

(Mirković & Boškov, 2006, p.12)

Mirković & Boškov (2006, p. 12) propose the approach by which "the initial viewpoint..."

### ➔ **Referring to a specific part of a work**:

(Theissen, 2004a, chap. 3)

(Keaton, 1997, pp. 85-94)

### ➔ **Personal communications, including interviews, letters, memos, e-mails, and telephone conversations**, are cited as below. (These are *not* included in the reference list.)

(K. Ljubojević, personal communication, May 5, 2008).

## **3. Footnotes and Endnotes**

A few footnotes may be necessary when elaborating on an issue raised in the text, adding something that is in indirect connection, or providing supplementary technical information. Footnotes and endnotes are numbered with superscript Arabic numerals at the end of the sentence, like this.<sup>1</sup> Endnotes begin on a separate page, after the end of the text. However, journal **does not recommend the use of footnotes or endnotes**.

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: Ekonomski fakultet, 1965-1976; 1981; 1996-. – 24 cm

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