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DOES RENEWABLE ENERGY SPUR ECONOMIC GROWTH IN KENYA? AN EMPIRICAL INVESTIGATION

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ABSTRACT

In this paper, the dynamic impact of renewable energy consumption on economic growth in Kenya has been empirically examined during the period from 1990 to 2019, using the autoregressive distributed lag-bounds testing approach. The study was motivated by the call to increase renewable energy use in Kenya. Contrary to expectations, the results of the study show that renewable energy consumption has no significant impact on economic growth in Kenya, regardless of whether the analysis is in the long or short run. The study, thus, concludes that the development of the real sector in Kenya is not dependent on the exploration of renewable energy. This implies that Kenya can still pursue the necessary energy conservations policies without compromising its long-term growth trajectory.

1. INTRODUCTION

The relationship between renewable energy consumption and economic growth is beginning to generate a considerable amount of debate among academics and policy-makers. The source of the debate has been centred on the recent emphasis on and increase in renewable energy use, on the one hand, and the need to stimulate economic growth, on the other hand; yet the renewable energy use and economic growth nexus remains under-investigated. More studies on the nexus in question have been on the causal relationship between renewable energy consumption and economic growth (see, among others, Apergis & Payne, 2010; Armeanu, Vintila & Gherghina, 2017; Marques & Fuinhas, 2012; Ozcan & Ozturk; 2019), leaving only a handful studies on the impact of the former on

the latter (see: Majeed, Anwar & Luni, 2021; Smolovic, Muhadinovic, Radonjic & Duraskovic, 2020).

Even where efforts have been made to explore the nexus, the outcomes remain varied at best and far from being conclusive. In the renewable energy-growth nexus literature, three strands have emerged. The first strand posits that renewable energy consumption has a positive effect on economic growth (see, among others, Cetin, 2016; Kamoun, Abdelkafi & Ghorbel, 2019; Majeed et al., 2021), while the second strand maintains that the impact is negative (see Tsaurai & Ngcobo, 2020; Venkatraja, 2020, among others). The third strand emphasises that renewable energy use has no significant impact on economic growth (see Nyoni & Phiri, 2018; Smolovic et al., 2020, in traditional member states). This inconclusivity motivated this study.

In Kenya, huge investments have gone into the renewable energy sector development, making the country referenced as having one of the highly developed power sectors in both the sub-Saharan Africa (SSA) and Africa, in general, with a strong national power utility and abundant renewable energy resources (United States Agency for International Development [USAID] 2022). Further, the World Bank (2022a) highlights that cooperation within the World Bank Group and partnership with other development partners acted as a launch pad for Kenya to achieve substantial headway in increasing the supply of both reliable and cheaper electricity.

Despite this remarkable stride in its energy sector, Kenya is reported to have continued to encounter substantial challenges to viable and broad economic growth (USAID, 2022). These challenges have been exacerbated by COVID-19-related economic disruptions, in addition to long-standing challenges such as corruption and economic inequality (USAID, 2022). According to the USAID (2022), two-thirds of Kenyans live in poverty. They make less than US$3.20 per day (USAID, 2022). This bright renewable energy narrative and the not-so-bright economic growth narrative in one economy have left researchers inquisitive; hence, this study aimed to explore the renewable energy and economic growth nexus in Kenya. To our knowledge, no empirical research has fully explored this nexus using data from Kenya. The closest paper to our study is based on a study by Qudrat-Ullah and Nevo (2021) on Africa, which includes a panel of 37 African countries. However, as in other panel data studies, the outcomes from such a study may not adequately provide guidance to policy makers in Kenya as they lack country-specific effects for Kenya.

Against this background, the objective of the current study is to empirically investigate the dynamic impact of renewable energy consumption on economic

growth in Kenya, using the autoregressive distributed lag (ARDL) bounds testing approach. The study seeks to unravel the mystery behind the two opposing narratives currently exhibited by the Kenyan renewable and real sectors. The outcome of the study has key policy implications for Kenya.

The rest of this paper is structured as follows: Section 2 provides an overview of the energy sector and economic growth in Kenya. Section 3 reviews the literature on the impact of renewable energy consumption on economic growth, while Section 4 presents the methodology, the study's results, and the analysis thereof. Finally, section 5 concludes the study.

2. AN OVERVIEW OF RENEWABLE ENERGY AND ECONOMIC GROWTH TRENDS IN KENYA

According to USAID (2022), Kenya is among the countries with the most developed power sectors in sub-Saharan African region. Its energy arsenal includes an active private sector, a strong national power utility, and abundant renewable energy resources, such as geothermal, wind, and solar. Over the past 20 years, access to electricity has increased dramatically in Kenya, reaching an electrification rate of 89% in 2017 (COBENEFITS, 2022), with electricity access success primarily driven by its renewable energy development and innovative and strategic policies. According to the World Bank (2022a) and COBENEFITS (2022), the country's abundance of stable renewable energy resources led to an ambitious plan to achieve energy access for all by 2022. In 2019, more than 80% of the renewable energy in Kenya came from hydro and geothermal sources (Takase, Kipkoech & Essandoh, 2021).

Due to the government's investment in geothermal energy, from 2014, the power cost has been reduced by over 30%, for all consumers, irrespective of whether they are industrial or domestic consumers – thereby reducing the cost of doing business (World Bank, 2022a). The World Bank (2022a) further points out that the World Bank Group is the largest development financier of geothermal power in Kenya and has been engaged in geothermal development since the 1970s – which explains Kenya's advanced renewable energy sector as it commenced with the renewable energy journey much earlier – raising prospects for growth and shared prosperity.

Figure 1 displays the renewable energy consumption trends and the economic growth trends in Kenya over the period 1990 - 2019.

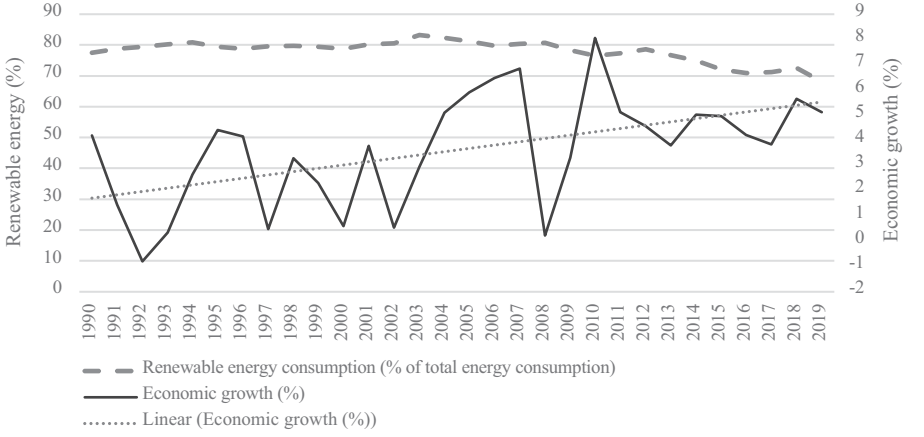


Figure 1. Trends in renewable energy consumption and economic growth in Kenya (1990-2019)

Source: Author computations; Data (World Bank, 2022b)

As displayed in Figure 1, renewable energy consumption has been gradually declining since the early 2000s, following a decade of stagnation. While the peak of 83.3% was reached in 2003, the trough of 68.1% was hit in 2019 (World Bank, 2022b). In Kenya, renewable energy consumption is high, averaging 78% of the total final energy consumption in the country per annum. On the other hand, economic growth has been stronger than most sub-Saharan African economies, averaging 3.6% per annum over the review period (World Bank, 2022b). The strongest growth of 8.1% was recorded in 2010. In the review period, Kenya once recorded a negative growth rate (of -0.8%) in 1992 (World Bank, 2022b). Over the review period, economic growth in Kenya trended upward. Pre-COVID-19 pandemic, Kenya was among the fastest-growing economies in Africa, on average, posting an annual growth rate of 5.9% between 2010 and 2018 (USAID, 2022).

Despite positive developments, Kenya, like many countries in SSA, still needs to overcome the challenges of lack of social and economic opportunities and universal access to clean, reliable, and affordable energy services to power both a resilient and sustainable economy and to provide affordable and secure energy services for domestic, productive, and value creation activities (COBENEFITS, 2022). Wood-based fuel supply is still a primary energy source in remote areas, low-income urban dwellers, and informal markets – pausing vegetation destruction and environmental degradation (Takase et al., 2021).

3. LITERATURE REVIEW

Although some work has been done in an effort to uncover the nature of the association between renewable energy consumption and economic growth, to date studies investigating the impact of renewable energy consumption on economic growth are scant as more attention has been given to the causality between the two. Even where such impact studies have been carried out, the empirical outcomes have been fundamentally indecisive – organized into three groups. The first group includes studies that found renewable energy consumption to have a positive impact on economic growth, while the second group covers the studies that found the impact to be negative. Then, there is the third category with studies that found renewable energy consumption to have a neutral impact on economic growth.

From the first group, Cetin (2016) investigated the relationship between renewable energy consumption and economic growth in the long run for E-7 countries from 1992 to 2012 based on heterogeneous panel data analysis. The results of the study revealed that renewable energy intake has a positive impact on economic growth in the study countries. Inglesi-Lotz (2016) estimated the impact of renewable energy consumption on economic welfare using panel data methods. The results showed that the impact of renewable energy use or its share of the overall energy mix on economic growth is affirmative. Charfeddine and Kahia (2019) investigated the effect of renewable energy use and financial development on carbon dioxide (CO2) emissions and economic growth in 24 countries of the Middle East and North Africa region during the period 1980 – 2015. Using panel vector autoregressive model, it was established that the impact of renewable energy on economic growth, though weak, is positive.

Haseeb, Abidin, Hye and Hartani (2019) empirically investigated the role played by renewable energy in inducing economic growth in Malaysia using annual data over the period 1980 - 2016. Based on modern econometric techniques, the study results showed that renewable energy has a significant and positive impact on economic growth in Malaysia, both in the short and long run. Mahjabeen, Shah, Chughtai and Simonetti (2020) analysed the energy-institutional stability-economic growth nexus based on a Cobb Douglas production function in D-8 countries using data from 1990 to 2016. Using the Autoregressive Distributive Lag, Fully Modified Ordinary Least Square, and Dynamic Ordinary Least Square models and tests, the results of the study showed that renewable energy consumption has a positive impact on economic growth.

Majeed et al. (2021) examined the influence of renewable and non-renewable energy consumption on economic growth for 174 economies in a global pane

setting using data from 1980 to 2019. The sample was further divided into the subsamples of developed and developing countries over the review period. The renewable energy sources were also further disaggregated by production source, and an estimation of their separate impacts on economic growth ensued. Using panel estimation methods, the results revealed that renewable energy consumption has a positive impact on economic growth in all three samples – the main global sample and the developed and developing country subsamples.

Other studies that belong to the first group of studies include Rafindadi and Ozturk (2017) in the case of Germany; Zrelli (2017) for the Mediterranean countries; Khobai and Le Roux (2017) in the case of South Africa; Marinaş, Dinu, Socol and Socol (2018) in the selected Central and East European economies using the error correction model; Kamoun, Abdelkafi & Ghorbel (2019) in the case of a panel of 13 OECD countries; and Smolovic et al. (2020), in the long run in both the traditional and new European Union (EU) member states, from 2004 to 2018, in a dynamic panel ARDL setting.

In the second category of studies, Ocal and Aslan (2013) examined the renewable energy consumption-economic growth nexus in Turkey. Based on the ARDL approach, the results of the empirical tests show that renewable energy consumption has a negative impact on economic growth. Bozkurt and Destek (2015) explored the association between economic growth and renewable energy intake for the period 1980 – 2012 in selected OECD countries. The results based on the ARDL approach showed that while the impact of renewable energy use on GDP is positive in both the U.S. and Germany, it was found to be negatively correlated with GDP in Italy and Turkey, leading to the conclusion that renewable energy consumption has positive implications for economic growth but only in more developed countries.

Smolovic et al. (2020) examined the relationship between renewable energy consumption and economic growth in EU member states – both traditional and new – over the period from 2004 to 2018 using a Pooled Mean Group estimator within a dynamic panel ARDL framework. The results show that in the short term, the impact of renewable energy consumption on economic activity is negative in new member states. Tsaurai and Ngcobo (2020) investigated the impact of renewable energy consumption on economic growth in Brazil, Russia, India, China, and South Africa (BRICS) using panel data analysis and data from 1994 to 2015. Like Silva et al. (2012) and Lee and Jung (2018), all three estimation techniques yielded results showing that renewable energy use and economic growth in the study countries are negatively related.

In the same year, Venkatraja (2020) studied the impact of renewable energy on economic growth in the BRIC (Brazil, Russia, India, and China) countries, from 1990 to 2015 based on a panel regression model. The study confirmed the negative association between the two.

Then, from the third category, characterised by the neutrality of renewable energy consumption on economic growth, Dogan (2016) analysed the relationship between economic growth, renewable and non-renewable energy consumption for Turkey and found that while non-renewable energy consumption has a significant positive consequence on economic growth, renewable energy consumption has an insignificant impact on economic growth. Nyoni and Phiri (2018) empirically investigated the impact of renewable energy on economic growth utilising linear and nonlinear ARDL models and data from 1991 to 2016. Neutral results were confirmed in South Africa.

Smolovic et al. (2020) examined the link between renewable energy utilisation and economic growth in the EU member states from 2004 to 2018 and found the renewable energy use to be insignificant in determining economic activity, but only in the traditional member states.

On balance, the reviewed literature has shown that although most studies on the impact of renewable energy consumption on economic growth fall in the first category, an assumption that renewable energy has a positive impact on economic growth should be taken with a large pinch of salt, as there is also evidence to the contrary – thereby strengthening the need for country-specific studies on the topic in order to promote evidence-based policy formulation and implementation.

4. METHODOLOGY

4.1 The ARDL Bounds Testing Approach

This study utilises the autoregressive distributed lag (ARDL)-bounds testing approach to examine the cointegration relationship among variables and the impact of renewable energy consumption on economic growth in Kenya. This approach was deemed suitable as it has copious advantages. The ARDL test has superior small sample properties (Pesaran & Shin, 1999). It provides estimates of the long-run model that are not biased and valid t-statistics even though some of the regressors could be determined in the model (Nyasha & Odhiambo, 2016, 2020; Nyasha, Odhiambo & Musakwa, 2022; Odhiambo, 2008; Pesaran, Shin & Smith, 2001) and it is non-restrictive on the order of integration of variables

in the model, as long as the order is less than two. The approach is also simple, using single equations rather than a set of multiple equations, yet with reliable outcomes. In addition, it automatically incorporates dynamism in its estimation. Its superiority over the conventional methods has been attested to by its increased use in empirical research in recent times.

4.2 Specification of the Empirical Model

Four additional variables are added to the model to ensure the model is fully specified and that the omission-of-variable bias is addressed. These variables are trade openness, domestic investment, human capital, and inflation, and these are known in the literature to be linked with economic growth (see Nyasha & Odhiambo, 2019). While the coefficients of the first three additional variables are expected to be positive, the coefficient of the last variable is expected to be negative. The independent variable of interest, renewable energy consumption, is expected to have a positive impact on economic growth; hence, its coefficient is expected to be positive. To empirically examine the impact of renewable energy consumption on economic growth, the empirical ARDL model specified in this study is:

$$\begin{aligned}\Delta EG_t = {} & \Omega_0 + \sum_{i=1}^{n} \Omega_{1i} \Delta EG_{t-i} + \sum_{i=0}^{n} \Omega_{2i} \Delta RE_{t-i} + \sum_{i=0}^{n} \Omega_{3i} \Delta IN_{t-i} + \sum_{i=0}^{n} \Omega_{4i} \Delta PG_{t-i} \\ & + \sum_{i=0}^{n} \Omega_{5i} \Delta DI_{t-i} + \sum_{i=0}^{n} \Omega_{6i} \Delta TO_{t-i} + \Omega_7 EG_{t-1} + \Omega_8 RE_{t-1} + \Omega_9 IN_{t-1} \\ & + \Omega_{10} PG_{t-1} + \Omega_{11} DI_{t-1} + \Omega_{12} TO_{t-1} + \mu_t \end{aligned} \quad (1)$$

Where:

EG is economic growth, measured by the growth rate of GDP; RE is renewable energy consumption, proxied by renewable energy consumed as a share of total energy consumed; IN is inflation, measured by consumer prices (annual %); PG is human capital, proxied by population growth rate (annual %); DI is domestic investment, proxied by gross fixed capital formation as a percentage of GDP; and TO is trade openness, calculated as the sum of imports and exports as a percentage of GDP.

Ω_0 is a constant, Ω1-6 and Ω7-12 are short-run and long-run coefficients, Δ is the difference operator, n is the lag length and μt is the white noise-error term.

Following equation (1), the ARDL-based error-correction model is specified as:

$$\Delta EG_t = \Omega_0 + \sum_{i=1}^{n} \Omega_{1i} \Delta EG_{t-i} + \sum_{i=0}^{n} \Omega_{2i} \Delta RE_{t-i} + \sum_{i=0}^{n} \Omega_{3i} \Delta IN_{t-i} + \sum_{i=0}^{n} \Omega_{4i} \Delta PG_{t-i} + \sum_{i=0}^{n} \Omega_{5i} \Delta DI_{t-i} + \sum_{i=0}^{n} \Omega_{6i} \Delta TO_{t-i} + \xi_1 ECM_{t-1} + \mu_t$$

Where:

ECM represents the error-correction term; and its coefficient term; μt represents the mutually uncorrelated white-noise residuals. The rest of the variables and characters are as defined in Equation 1.

4.3 Data

The annual time series data from 1990 to 2019, for this study, was sourced from the World Bank Databank (World Bank, 2022b).

5. EMPIRICAL RESULTS

5.1 Stationarity Tests

The Dickey-Fuller generalised least squares (DF-GLS) and Phillips-Perron (PP) tests were utilised to test all the variables for stationarity in an effort to determine the suitability of the ARDL-bounds testing approach chosen for empirical tests. The outcome of the stationarity tests on all variables are summarised in Table 1.

Table 1. Results of Stationarity Tests – All Variables in Estimated Model

Dickey-Fuller generalised least square (**DF_GLS**)					Phillips – Perron **(PP)**			
	Level variables		1st differenced variables		Level variables		1st differenced variables	
Variable	Intercept	Intercept & Trend	Intercept	Intercept & Trend	Intercept	Intercept & Trend	Intercept	Intercept & Trend
EG	-3.470***	-4.583***	-	-	-3.488**	-4.764***	-	-
RE	-0.232	-1.188	-3.853***	-4.852***	-0.835	0.486	-3.752***	-5.184***
IN	-1.984**	-2.396	-	-6.144***	-2.996**	-3.585**	-	-
PG	0.207	-3.073**	-1.864*	-	-1.515	-2.153	-2.680*	-3.438*
DI	-2.294**	-2.879	-	-5.465***	-2.388	-3.116	-9.034***	-8.831***
TO	-1.203	-2.628	-3.583***	-3.553***	-1.131	-2.635	-5.630***	-6.077***

Notes: *, ** and *** denotes stationarity at 10%, 5% and 1% significant levels respectively
Source: Authors' calculation

The results of the unit root tests reported in Table 1 show that while some variables were integrated of order zero, other variables were integrated of order one. Furthermore, no variable was stationarity after being differenced more than once, confirming that the ARDL-bounds testing approach is suitable for this study.

5.2 Cointegration – Bounds Test

Following the confirmation that all variables of the study are stationary in either levels or after differenced once, cointegration was carried out, where the long-run relationship between the variables in the specified model is examined based on the ARDL bounds testing procedure. The results of the cointegration test are summarised in Table 2.

Table 2. Outcome of Bounds F-test for Cointegration

Dependent Variable	Function		F-statistic		Cointegration Status	
EG	F(EG|RE, IN, PG, DI, TO)		5.03***		Cointegrated	
	Asymptotic Critical Values					
Pesaran et al. (2001), p.300, Table CI(iii) Case III	1%		5%		10%	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
	3.41	4.68	2.62	3.79	2.26	3.35

Note: *** denotes statistical significance at 1% level

Source: Authors' calculation

As reported in Table 2, the results of the ARDL bounds test for cointegration reveal that the calculated F-statistic of 5.03 is greater than the upper bound critical value, reported by Pesaran et al. (2001) in Table CI(iii) Case III, at 1% significance level. The results confirm the existence of a stable long-run association of the variables in the specified model, hence it is confirmed that the variables are cointegrated. This confirmation is critical as it allows for the estimation of the coefficients.

5.3 Coefficient Estimation

As part of the model estimation, optimal lag length for the model was determined by using the Schwarz Information Criterion (SIC) as it produced a more parsimonious model than the Akaike Information Criterion based model. The resultant optimal lag length selected based on SIC is ARDL(1,0,0,0,1,0). Both the long-run and the short-run coefficients of the study are displayed in Table 3, Panel A and Panel B, respectively.

Table 3. Results of Coefficient Estimation

Panel A: Long-run coefficients [Dependent variable: real GDP growth rate (**EG**)]	
Regressor	Co-efficient (t-statistic)
C	21.163 (1.332)
RE	-0.363 (-1.464)
IN	-0.087* (-1.951)
PG	0.887 (0.243)
DI	0.328* (1.864)
TO	0.085 (1.250)
Panel B: Short-run coefficients [Dependent variable: real GDP growth rate (Δ**EG**)]	
ΔRE	-0.392 (-1.416)
ΔIN	-0.094* (-2.026)
ΔPG	0.381* (1.762)
ΔDI	0.355* (1.825)
ΔTO	0.091 (1.242)
Ecm (-1)	-0.981*** (-5.753)

R-Squared	0.735	R-Bar-Squared	0.651
SE of Regression	1.686	F-Stat F(6,21)	6.212[0.001]
Residual Sum of Squares	56.841	DW statistic	2.124

Note: * and ** denote stationarity at 10% and 5% significance levels respectively.

Source: Authors' calculation

The results of the estimated model reported in Table 3 reveal that in Kenya, renewable energy consumption has no significant impact on economic growth, both in the long run and in the short run. These results are confirmed by the long-run (RE) and short-run (ΔRE) coefficients of renewable energy consumption that are statistically insignificant. Although these results are contrary to expectations, they are far from being unusual. Smolovic et al. (2020), in the case of traditional member states, and Nyoni and Phiri (2018) also found the relationship between renewable energy consumption and economic growth to be neutral. Though unpopular, these results could have been driven by inefficiencies – possibly reversing the gains derived from renewable energy consumption.

Further analysis of the results shown in Table 3 shows that other results of the study are varied. While the relationship between trade openness and economic growth was insignificant, domestic investment and inflation had a significant impact on economic growth in Kenya. These results applied both in the long

and short run. Although the latter two variables have a significant influence on economic growth, as per expectations, domestic investment has a positive effect, while inflation has a negative impact on economic growth. The impact of human capital on economic growth turned out to be mixed – neutral in the long run but positive in the short run. In the event of a shock in Kenya, the equilibrium would be regained at a rate of 98% per annum, as reflected by the coefficient of the lagged error correcting term that is negative and statistically significant at a 1% level, with a 98% magnitude.

Diagnostic tests were performed for serial correlation, heteroscedasticity, functional form and normality. The results show that the model passed all the diagnostic tests, as shown in Table 4. Stability tests were also performed based on the Cumulative Sum of Recursive Residuals (CUSUM) and Cumulative Sum of Squares of Recursive Residuals CUSUMQ), and the results are displayed in Table 5. The results confirm that the parameter stability of this model in the sample period.

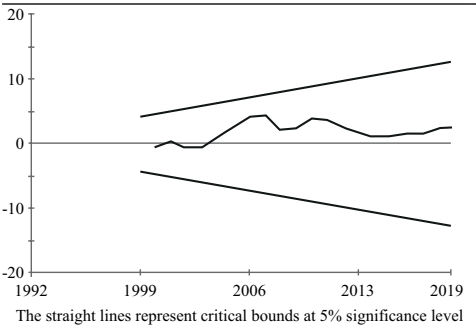
Table 4. Diagnostic Tests

LM Test Statistic	Results [Probability]
Serial Correlation: CHSQ(1	0.425[0.515]
Functional Form: CHSQ(1)	0.710 [0.399]
Normality: CHSQ (2)	1.342[0.511]
Heteroscedasticity: CHSQ (1)	0.108[0.742]

Source: Authors' calculation

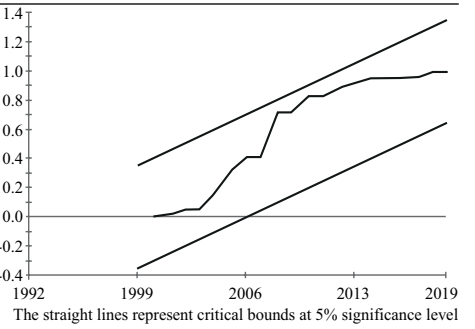
Table 5. Plot of CUSUM and CUSUMQ

Plot of CUSUM



The straight lines represent critical bounds at 5% significance level

Plot of CUSUMQ



The straight lines represent critical bounds at 5% significance level

Source: Authors' computations from microfit output

6. CONCLUSIONS

In this paper, the dynamic impact of renewable energy consumption on economic growth in Kenya has been empirically investigated over the period 1990 – 2019. Although there have been calls to increase renewable energy utilisation in Kenya as part of reducing greenhouse gas emissions, the impact of such increased use on economic growth has not been put to the test, yet it has huge energy and growth policy implications for the country. The study used the ARDL-bounds testing approach to examine this relationship. The results of the study revealed that in Kenya, renewable energy consumption has no significant impact on economic growth, regardless of the period of analysis – long or short term. Therefore, the study concludes that the development of the real sector in Kenya is not dependent on the exploration of renewable energy. From a policy perspective, these results imply that policies on energy conservation can be implemented in Kenya without threatening economic growth.

Conflict of interests

The authors declare that there is no conflict of interest.

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ДА ЛИ ОБНОВЉИВА ЕНЕРГИЈА ПОДСТИЧЕ ЕКОНОМСКИ РАСТ У КЕНИЈИ - ЕМПИРИЈСКО ИСТРАЖИВАЊЕ

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САЖЕТАК

У овом раду динамички утицај потрошње обновљиве енергије на економски раст у Кенији емпиријски је испитан током периода од 1990. до 2019. године, коришћењем приступа тестирања ауторегресивне дистрибуиране границе кашњења. Студија је мотивисана потребом да се повећа употреба обновљиве енергије у Кенији. Супротно очекивањима, резултати студије показују да потрошња обновљиве енергије нема значајнији утицај на економски раст у Кенији без обзира да ли се ради о дугорочној или краткорочној анализи. Дакле, у студији се закључује да развој реалног сектора у Кенији не зависи од употребе обновљивих извора енергије. То имплицира да Кенија и даље може да спроводи неопходне политике уштеде енергије без угрожавања своје дугорочне путање раста.

Кључне ријечи: *Кенија, потрошња обновљиве енергије, енергетски микс, економски раст.*

INFLUENCE OF THE SOCIAL ENTREPRENEURSHIP ON THE DEVELOPMENT OF THE TRANSITIONAL ECONOMY AND SOCIETY

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ABSTRACT

In this paper, we investigated the impact of social entrepreneurship on the development of the transitional economy. The research was carried out on the territory of Bosnia and Herzegovina (B&H). As the most featured negative side of the transition, we see an increase of social inequality and poverty. One of the ways to solve these problems is the development of social entrepreneurship. The main goal of the research is to find a model for the development of social entrepreneurship that would contribute to the development of society and the economy of developing countries. Ninety seven subjects of social entrepreneurship, from all over B&H, participated in the research. We collected data using questionnaires, and we used correlation and regression methods to analyze them. The results showed that social entrepreneurship is at a low level and that its development would contribute to the development of society and the economy. In this research, we have created a model of social entrepreneurship development and proved that social entrepreneurship could be an excellent way to solve many social and economic problems.

1. INTRODUCTION

We can follow the development of entrepreneurship and the private sector from Adam Smith's theory of the "invisible hand" and through Schumpeter to contemporary economic flows and rapid technological development that "forces" business entities to innovate and adapt to new economic conditions. In

recent years, there have been more and more economic opinions according to which entrepreneurship is considered as the fourth factor of production, next to labor, capital and technologies (Wadhwani et al., 2020). Freedom of competition contributes to the development of an entrepreneur as an individual, and thus the economy, because according to Schumpeter's theory, the growth of the number of entrepreneurs leads to economic growth (Bazhal, 2016). According to this theory, the quality of community life depends on the number of entrepreneurs. If everything worked as in theory, there would be no hungry or poor people today, and we are aware of the fact that, today, these are the huge problems. We are also aware of the fact that people who have some physical disability or other health problem cannot live normally due to lack of understanding of the environment and poor employment opportunities. Besides these problems, there are many more, due to various marginalized groups of society. All over the world, numerous governmental and non-governmental organizations and associations are struggling with these problems, in order to provide decent life to this part of the community and provide their employment opportunities. We meet entrepreneurship in the business sector, the government sector and the non-profit sector, in hospitals, cultural institutions, colleges, and sports clubs (Petković, 2021, p. 66).

The challenge for the academic community and political decision-makers is how to find a long-term and sustainable solution to these problems. One of the possibilities that arises, which offers the best and highest quality solution, is the development of social entrepreneurship. So, in this case, ideas, knowledge and innovations would contribute to solving not only economic, but also social problems. Social entrepreneurship does not imply the acquisition of profit as the basic goal of business, but also the investment of that profit in solving social problems. Social entrepreneurship as one of the categories of entrepreneurship offers opportunities for solving numerous social and economic problems. Researching this area of business, we have seen that social entrepreneurship is an important economic and social factor in developed economies. In B&H, social entrepreneurship is not sufficiently developed and researched area. There are many factors that influence this situation. The most often mentioned reason for this situation is insufficient or no legal regulation of this type of business. The next factor is the misunderstanding of the importance of the third sector of the economy by state institutions. The support provided by state institutions is weak or non-existent. The next factor is the weak inclusion of the social entrepreneurship topics in the programs of educational institutions. In general, the understanding of the concept and significance of social entrepreneurship is

at a very low level in B&H. This refers to the existing business entities and potential future entrepreneurs, as well as to the wider social community.

Social entrepreneurs are the driving force behind solving numerous economic and social problems around the world (Bosma & Levie, 2010; GEM, 2019; von Ravensburg et al., 2018; Spicer Kay & Ganz, 2019; Janelidze, 2020; Chliova, Mair & Vernis, 2020; Pape et al., 2020; Bobyreff, 2021). Like all business entities, social entrepreneurs are also faced with increasing competition on the market, and that is why innovations are very important in this area as well. Innovating business models of social entrepreneurship is the only way to survive in this environment. This fact is supported by empirical research and authors who have dealt with this issue (Seelos & Mair, 2005; Müller, 2012; Wulleman & Hudson, 2015). Social entrepreneurship reduces unemployment, includes marginalized social groups in economic activities, and helps solve health, educational and other social problems, fights against climate change and pollution of nature. There are indeed numerous activities that these entrepreneurs perform and in that way they help the growth of social well-being. In order to encourage the development of social entrepreneurship, there are many changes to be made in the business climate of B&H. Today, in the digital era, there are many opportunities to stimulate the development of the social entrepreneurship and entire economy.

Based on the above, we will define the research problem as a question: How to improve the social and economic development of Bosnia and Herzegovina?

The subject of the research is a theoretical-empirical analysis of social entrepreneurship and its impact on the development of the economy and society with a special focus on Bosnia and Herzegovina. We will locate the subject of research in the field of entrepreneurial and theoretical economics. The influence of other variables in this research will be declared as constants (ceteris paribus).

The theoretical part of the analysis refers to the review of relevant literature in the field of social entrepreneurship, as well as the impact of social entrepreneurship on economic and social development. The empirical analysis is based on the examination of economic subjects of social entrepreneurship in B&H. The research was conducted in the form of a survey with a structured questionnaire, and the questions were related to information about social entrepreneurship, as well as about the significance and level of development of social entrepreneurship in the territory of B&H. The aim of the research is to get information about the awareness of subjects of social entrepreneurship about their importance in solving certain social and economic problems. Based on the obtained data, we will be able to analyze the current state of social entrepreneurship, as well as the perspective of its development in B&H.

The significance of the research is reflected in raising awareness of the benefits of social entrepreneurship. This research could raise the awareness of state institutions about the importance of social entrepreneurship. Also, this research can encourage anyone who has an idea and is thinking about starting a business to focus on this type of business. The results of the research can be useful for decision makers in the government who are involved in the creation of guidelines and initiatives for the development of social entrepreneurship. Also, the research can be useful for managers in social enterprises to increase the efficiency and effectiveness of social enterprises. This area is not sufficiently researched, especially in developing countries, so our research is also useful for the academic community.

This paper consists of seven parts: introduction, literature review, development of hypotheses, description of empirical research methods, presentation of research results, discussion and conclusion.

2. LITERATURE REVIEW

History of social entrepreneurship. At the end of the 18th and the beginning of the 19th century, as a response to the problems that were the result of major changes in the economies of that time, the concept of social entrepreneurship appeared for the first time. The first social enterprises in Europe were formed in Italy and were called social cooperatives. Based on this example, social entrepreneurship started to develop in other European countries as well. And today, there are around 40 million employees and 200 million volunteers working in the social entrepreneurship sector in the world (Banjac & Dojčinović, 2016, p. 43). In the 19th century, cooperatives played a leading role in the social economy sector, and were one of the oldest and most widespread forms of social enterprises (Volkmann, Tokarski & Ernst, 2012, p. 10). In the period from 1945 to 1975, the economy of Western Europe was mainly characterized by the traditional private capitalist and the public sector. In this period, the social economy practically disappeared as a significant force in the harmonization process of economic growth and social well-being (Monzon & Chaves, 2008, pp. 550-553). At the beginning of the 80s of the 20th century, the term "social enterprise" was used in Great Britain during the creation of the program "Opening jobs in the EU". In Europe, the situation changed significantly with the adoption of the Italian Law on Cooperative Sociale in 1991 (Borzaga & Santuari, 2000, pp. 5-9). In 1995, James Gregory Dees held the first lectures on social entrepreneurship. Today, social economy and social entrepreneurship are represented in the curricula of about 30 business schools in the USA. In the EU, the sector of social economy employed

more than 11 million people in 2003, that is, 7% of the all working population in the EU (Defourny & Nyssens, 2010, p. 40). Social entrepreneurship became popular after the Nobel Prize in 2006, which was awarded to the Bangladeshi banker and economist Muhammad Yunus. He is the founder of "Grameen" bank, known for microfinancing small businesses, with an emphasis on female entrepreneurs. He received the Nobel Prize for his efforts to create a microcredit sector for financing those entrepreneurs who cannot get traditional bank loans (Yunus, Moingeon & Lehmann-Ortega, 2010).

The concept of social entrepreneurship. According to Martin & Osberg (2007) "every definition of the "social entrepreneurship" must begin with the term "entrepreneurship". The term "social" simply modifies entrepreneurship" (p. 30). According to the same authors, when we talk about social entrepreneurship, this term usually refers to those business ventures that, in addition to generating profit for the owners, also have some (higher) social or environmental purpose (p. 34). These enterprises are different from other classic for-profit enterprises because they measure their success not only by the profit they have achieved, but also by the degree of positive social or environmental changes they have produced - by the degree of created social capital (Santos, 2012, p. 344). The term "social entrepreneurship" was first widely used by Bill Drayton in 1963, who is the founder of the "Ashoka" foundation in 1978, which connects social entrepreneurs from all over the world and provides them with various forms of support - from consultations to financial support (Prodanov, 2018). Banks (1972) was the first who emphasized that social problems and business challenges can be solved by deploying managerial skills. Dees (1998) defined social entrepreneurship respecting the definitions given by Schumpeter and Jean-Baptiste Say. According to him, social entrepreneurs play the role of initiators of changes in the social sector. Björk et al. (2014) defined social entrepreneurship as the activities of individuals and groups who identify gaps in the social system as an opportunity to serve those who are marginalized in various ways and their goal is to deal with these needs in an entrepreneurial way. Dwivedi & Weerawardena (2018) defined social entrepreneurship as a strategic orientation in behavior, expressed through innovation, proactivity, risk management, effective orientation, social mission orientation and sustainability orientation, aimed at solving failures on the social market, creating greater social values and maximizing social impact. According Schneider (2017), social entrepreneurs cannot be classified exclusively as profit or non-profit organizations, but as entities that perform both functions - entrepreneurial and social. Social entrepreneurship contributes to the development of an economy based on solidarity. According to Dickel & Eckardt (2021), a distinction should be made between a social entrepreneur and a social

enterprise. Social enterprises primarily (therefore not exclusively) operate in the private non-profit sector, while social entrepreneurs, as leaders in areas of social change, operate in the private for-profit, public and private non-profit sectors (Petković, 2021). By researching the literature, we singled out three principles of social entrepreneurship:

- Socially responsible business - Implies responsibility to the environment, customers, workers, suppliers, to the community in which the enterprise operates (Rawhouser, Cummings & Newbert, 2019).
- Sustainable development - is achieved through decentralized and fairer distribution of profits, economic and social empowerment of local communities and more responsible use of natural resources (Littlewood & Holt, 2018).
- Democratic management - the right of employees to make decisions in the enterprise and to participate in the distribution of profits. In the entities of social entrepreneurship, all capital is subordinated to work and creating benefits for society and environment in which it operates (Kannampuzha & Hockerts, 2019).

3. DEVELOPMENT OF THE RESEARCH HYPOTHESIS

Social entrepreneurship is important as a stabilizing factor in the labor market and as a factor in the sustainable development of the community. How important social entrepreneurship is, and what its role in society and the economy is, is shown by the data that social enterprises were less vulnerable during the global economic crisis. For example, in the economic sector of Italy, the number of employees decreased drastically during the crisis, but in social cooperatives, that number increased by 2.7% in 2009 (Petričević, 2012, p. 12). Canestrino et al. (2020) state that social entrepreneurship is clearly market-oriented, while social innovation is not necessarily market-based and can be found in any sector: public, real and non-profit. Carayannis et al. (2019) point out that social innovations are related to new products, services and models that aim to improve human well-being and create social relationships and cooperation. Schwab Foundation for Social Entrepreneurship states that social entrepreneurship refers to the application of practical, innovative, sustainable approaches with the aim of developing society, and with an emphasis on those who are marginalized and poor (SCHWABFOUND, n.d.). Social entrepreneurship helps economic development through the creation and preservation of jobs, social inclusion, social innovation, rural and regional development, environmental protection,

etc. (Martin & Osberg, 2007). Based on this research, we will define a hypothesis that we will try to prove or disprove through our research. The hypothesis is:

H: The model of social entrepreneurship development will lead to the inclusion of marginalized groups of society in economic and social flows, employment increase and reduction of social help that would have consequence in the development of society and the economy.

4. METHODS

Empirical research conducted for the purposes of testing the research hypothesis is a combined qualitative and quantitative research. In order to be able to form a theoretical model that will contribute to the development of social entrepreneurship, we collected, processed, analyzed and interpreted secondary and primary data. As part of the theoretical research, a review of domestic and foreign literature was carried out. This part of the research gave us an insight into the current state of the research problem and enabled us to analyze the results of recent research in this area and to discuss and compare them with the results of empirical research conducted for the purposes of testing the research hypothesis and seeking answers to the research problem.

- For data processing, we applied automatic data processing using the Google Drive application, which displays the data from the completed questionnaire in tables and graphically in MS Excel.
- We used quantitative methods to analyze and test hypotheses:
  - Binomial distribution - probability distribution model (Sylla, 2014),

$$P(x) = \binom{n}{x} p^x q^{n-x} \quad x = 0,1,2,\ldots,n \tag{1}$$

$P(x) = 0$ for all other x.

  - Chi square test (X^2) - testing the significance between the frequency of distribution and the mutual connection of different characteristics (Lovrić et al., 2006),

$$X^2 = \sum_{i=1}^{r} \frac{(f_i - f_i^*)^2}{f_i^*} \tag{2}$$

- Duncan test of variance analysis – analysis of the impact of one phenomenon to another (Duncan, 1955; Čobanović Nikolić-Đorić & Mutavdžić, 2003),

$$R_{(p,v,\alpha)} = \sigma_m \cdot r_{(p,v,\alpha)} \quad (3)$$

– Signum test – since the collected results had non-parametric characteristics that deviate from the expected binomial distributions, the Signum test was used, and also for hypothesis testing (Stević et al., 2021; Stević et al., 2019).

The population in this paper consists of business entities and non-profit organizations on the territory of Bosnia and Herzegovina that are engaged in social entrepreneurship, solving a certain social problem by investing part of their profits. We formed the sample by random selection, by surveying a certain number of subjects of social entrepreneurship. The methods we used in this research for data processing and analysis, enabled us to determine the impact of social entrepreneurship on the development of society and economy, with a special focus on Bosnia and Herzegovina. For the purposes of this research, we used questionnaires. The first part of questionnaire refers to the general information about the subjects of social entrepreneurship. One part of the questionnaire refers to the legal regulation of the business of social entrepreneurs. In order to be able to compare the results of the analysis, we used the methods of comparison and classification, then the methods of analysis and synthesis. Based on the application of these methods and the obtained results, in this research we proposed a new theoretical model which, if applied, should contribute to the improvement of the development of social entrepreneurship as a factor in the development of the economy and society. At the end, we compared the obtained results with the results of similar research and looked at the possibilities of their application in Bosnia and Herzegovina and other small open economies in development.

5. RESEARCH RESULTS, HYPOTHESIS TESTING AND DEVELOPMENT OF MODEL

General information. Ninety seven subjects of social entrepreneurship, from the entire territory of B&H, participated in the empirical research for the purposes of testing research hypotheses. We will present the territorial representation of the respondents' participation in Table 1.

Table 1. Headquarters of subjects of social entrepreneurship that participated in the research

Number of subjects of social entrepreneurship	Headquarters
12	Sarajevo
11	Mostar
10	Banja Luka
4	Tuzla, Vareš
3	Prijedor, Bijeljina, Zenica, Foča, Jablanica, Brčko
2	Bratunac, Ustikolina, Konjic, Istočna Ilidža, Doboj, Šamac, Istočno Sarajevo.
1	Zavidovići, Teslić, Sanski Most, Olovo, Breza, Laktaši, Goražde, Gacko, Grahovo, Sapna, Šekovići, Prnjavor, Žepče, Ljubinje, Gradačac, Modriča, Kladanj, Lopare, Srebrenica, Trebinje, Domaljevac, Rogatica, Brod, Prozor-Rama.

Source: Authors' compilation

The average year of establishment subjects of social entrepreneurship is 2006. Therefore, we see that the middle age of establishment is not far away and these are relatively "young" subjects of social entrepreneurship.

Most of the subjects of social entrepreneurship that participated in this research were registered as citizens' associations (28.9%), followed by limited liability companies (23.7%), and independent entrepreneurs (18.6%).

The results of the research show that subjects of social entrepreneurship in B&H are engaged in various activities. There are 25.8% of respondents engaged in agriculture, which is the most represented activity in the sample. In the second place there is trade with a 22.7% share in the total sample. In the third place there is the provision of psychological and health services with 9.3% participation.

The number of workers per organization is approximately exponentially distributed, determined by the large unevenness of the number of employees. The largest, dominant group consists of entities with up to 10 employees (81), and the average number of employees is 10.092.

When we talk about the level of education of employees in organizations, 54 organizations declared that they have from 1 to 4 employees, 15 organizations have from 5 to 9 employees, while 8 organizations have 10 or more employees with a high education. Most organizations (55) declared that they have from 1 to 4 employees with a high school. Eleven organizations declared that they employ up to 5 workers with higher education, while 3 organizations declared that they employ from 5 to 10 workers with higher education. Thirteen

organizations declared that they have from 5 to 9 employees with high school, then 3 organizations declared that they have from 10 to 19 employees with high school, while 6 organizations declared that they have 20 or more employees with high school. Nine organizations employ up to 10 qualified workers. Thirteen organizations employ up to 4 unqualified workers, while one organization employs up to 30 unqualified workers seasonally.

The average of workers age is normally distributed, with a mean age of 40.104 years, with a standard deviation of 6.49 years (X^2=11.36219, df=7, p=0.12358).

Social entrepreneurship. Table 2 shows the answers to the question "What social problems does your organization deal with?". It was possible to give several answers to this question at the same time. From the analyzed answers, we can conclude that the most frequent problem, which organizations deal with, is the inclusion of marginalized groups of society in economic flows. Next, there is the education of marginalized groups of society through various seminars and trainings, as well as health care and other problems that the respondents try to solve through their activities.

Table 2. Social problems.

Solving social problems	Number of responses
Inclusion of marginalized groups of society in economic flows	83
Education of marginalized groups of society	36
Health Care	23
Ecological problems	11
Other	5

Source: Authors' compilation

To the question "How does your organization get involved in solving the mentioned problems?" most organizations (50.5%) answered that they employ people with disabilities. Assistance in the education of marginalized members of society is provided by 37.1% of organizations, while 28.9% of organizations provide assistance in providing health care for these members of society. Financial and other assistance is provided in the treatment of patients with various diseases by 19.6% of organizations, while 14.4% of organizations deal with solving ecological problems. It was also possible to give several answers to this question at the same time.

Distribution of answers to the question "For my organization, creating value for society and the environment is more important than creating financial value for the organization" with the following answers ((0) strongly disagree, (1) disagree

(2 answers), (2) agree (17 answers), (3) strongly agree (78 answers)) was verified by a significant binomial distribution (p>0.9999) with the parameter p=0.9278. The mathematical expectation of 2.7835 and the standard deviation of 0.4615 with mode 3 (group of 78 respondents) was realized (Figure 1).

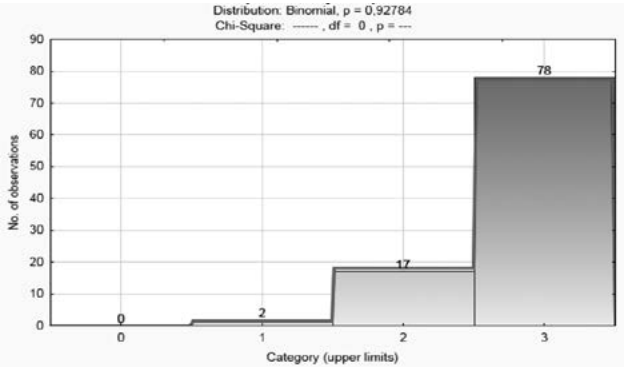

Figure 1. Binomial distribution: "For my organization, creating value for society and the environment is more important than creating financial value for the organization."

Source: Authors' compilation

The distribution of responses to the question related to the market in which organizations operate with the following answers: (1) local market, (2) national market, (3) regional market and (4) global market, is given in the following histogram (one organization is non-profit) (Figure 2). Figure 2 shows that 57 or 58.76% of the respondents operate on the local market, 28 or 28.87% on the national market, 9 or 9.28% on the regional market and 2 or 2.1% of the respondents operate on the global market.

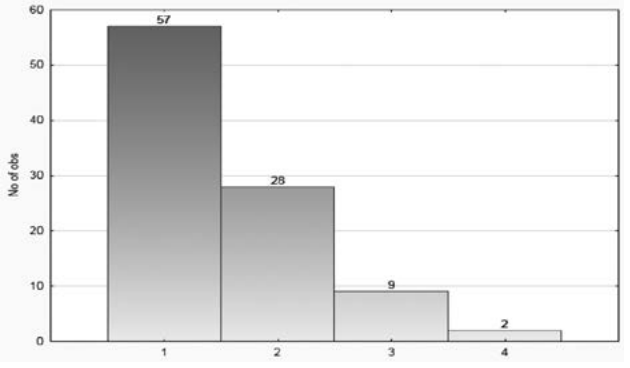

Figure 2. Markets in which subjects of social entrepreneurship operate.

Source: Authors' compilation

The answers to the question "What products/services does your organization offer on the market?" are very heterogeneous. Most respondents offer agricultural products, such as honey and honey products, fruit and vegetable products, cereals, healthy food, medicinal plants, dairy products and others. We also have those who offer unique items and handicrafts on the market, as well as creams and balms. Next, we have respondents who offer health care and socialization services, as well as social assistance to marginalized members of society. A part of the respondents on the market offers education and training services, as well as marketing and financial services. A small part of respondents offers catering services.

Distribution of answers to the question "Profit will be reinvested to serve the social or environmental purpose of my organization" with the following answers ((0) strongly disagree, (1) disagree, (2) agree, (3) strongly agree) was verified by highly significant ($p \approx 1$) binomial distribution with parameter $p=0.8762$. The mathematical expectation of 2.6288 and the standard deviation of 0.6006 with mode 3 (group of 67 subjects) was realized. Ninety one answers are in the positive domain, which means that respondents believe in the reinvestment of profits for social or environmental purposes (Figure 3).

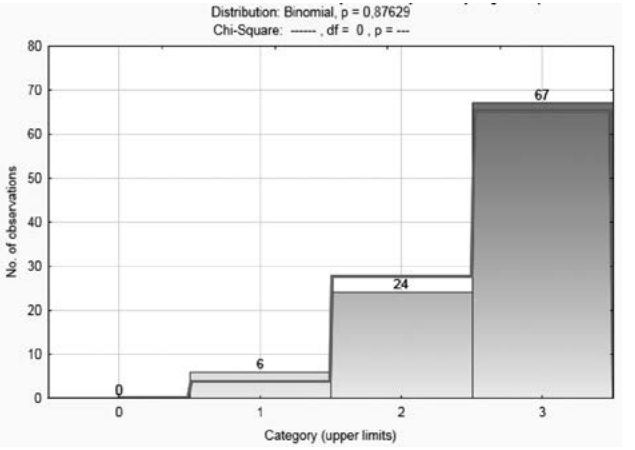

Figure 3. Histogram of significant binomial distribution of profit reinvestment in social or environmental purposes.

Source: Authors' compilation

Distribution of answers to the question "Our organization invests significant effort in measuring the social and environmental impact of our activities" with the following answers ((0) strongly disagree, (1) disagree, (2) agree, (3) strongly agree)) was verified by non-significant binomial distribution ($X^2=41.57195$,

df=1, p≈0) with parameter p=0.7182. The mathematical expectation of 2.1546 and the standard deviation of 1.0442 with mode 3 (group of 54 respondents) was realized (Figure 4).

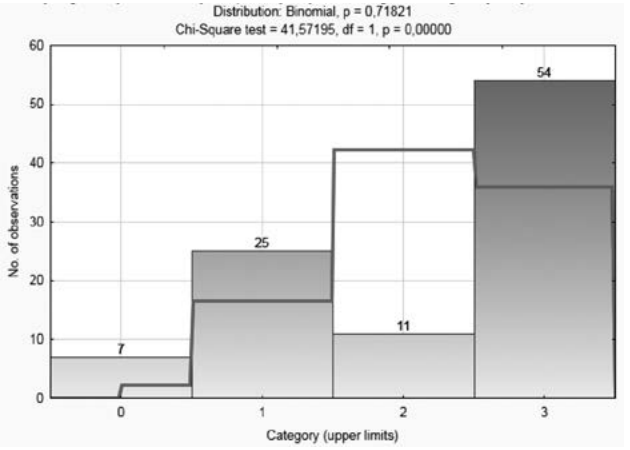

Figure 4. Histogram of non-significant binomial distribution of investment of significant effort in measuring social and environmental impact.

Source: Authors' compilation

There is a significant difference between question related to willingness to invest profits for social and ecological purposes and question related to efforts to measure social and ecological impact (highly verified and unverified binomial distributions confirm this fact). If the intention to reinvest profits is considered as an independent factor, and the investment of efforts in measuring the social and ecological impact as a dependent one, the analysis of variance shows the absolute absence of the influence of the factor (p=0.0000).

Figure 5 shows a bivariate histogram of the relationship between profit reinvestment and measuring effort. It shows that 22 respondents who are ready for profit reinvestment (let us remind that 91 respondents answered positively to the question about profit reinvestment, Figure 3) absolutely disagree or disagree that they invest a significant effort in measuring the social and ecological impact of their activities (22/91=0.2417). Although the answer is not satisfactory, it is encouraging because of self-criticism of the respondents.

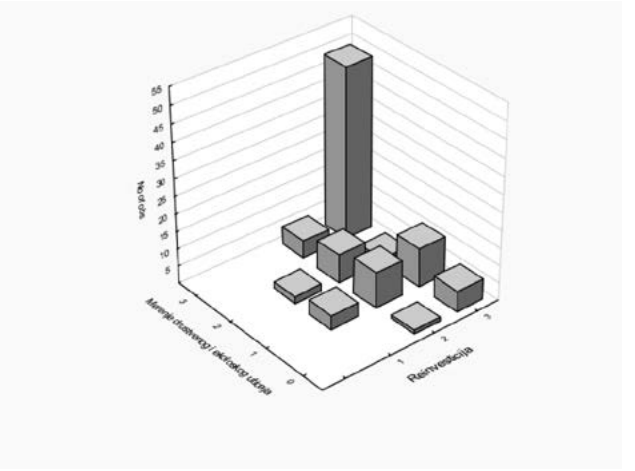

Figure 5. Bivariate histogram of the distribution of the relationship between profit reinvestment and effort in measuring social and ecological impact.

Source: Authors' compilation

The reason for the discrepancy in the desired reinvestments versus the realistic measurement of social and environmental impact is somewhat clarified by analyzing the descriptive (non-numerical) answer to the following question from the questionnaire: "If you chose option 2 or 3 in the previous question, please briefly describe how you measure social and ecological impact of your organization". Sixty one are dominantly focused on measuring social impact, 2 are focused on measuring ecological impact and two answers are missing. In this sense, it can be undeniably concluded that the discrepancy arose at the level of preference for social influence, while the ecological influence is ignored or not recognized.

To the question "We are satisfied with the level of development of social entrepreneurship in our economic environment" (with answers: (0) strongly disagree, (1) disagree, (2) agree, (3) strongly agree) an answer is reflected in general dissatisfaction. Even 95 out of 97 respondents (95/97=0.9793 - absolutely insignificant binomial distribution) gave answers (eccentrically negative) from the negative domain, and only 2 answers from the positive domain, where not a single respondent had absolute agreement with the question. The mathematical expectation of 0.4532 and the standard deviation of 0.5404 (group of 56 respondents) were realized (Figure 6).

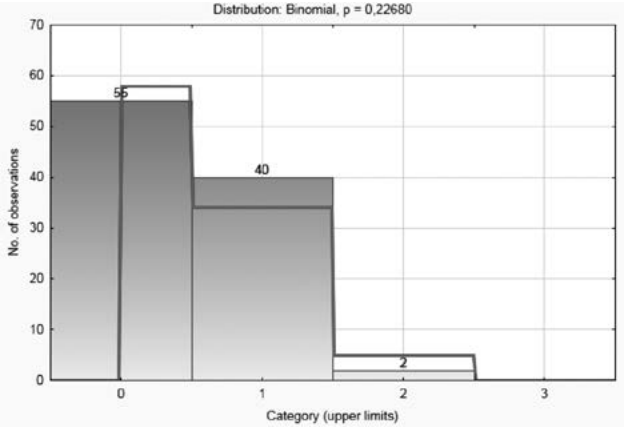

Figure 6. Histogram of significant binomial distribution of satisfaction.
Source: Authors' compilation

According to the answers to this question, we see that the respondents are dissatisfied with the level of development of social entrepreneurship.

The distribution of answers to the question: "Implementation of existing laws that regulate social entrepreneurship is", with the following answers ((0) none, (1) weak, (2) good, (3) excellent), was verified by significant (X^2=2.08237, df=1, p=0.1490) binomial distribution with parameter p=0.1030. The answers realized the mathematical expectation of 0.4123 and the standard deviation of 0.5543 with mode 0 (group of 60 respondents) (Figure 7).

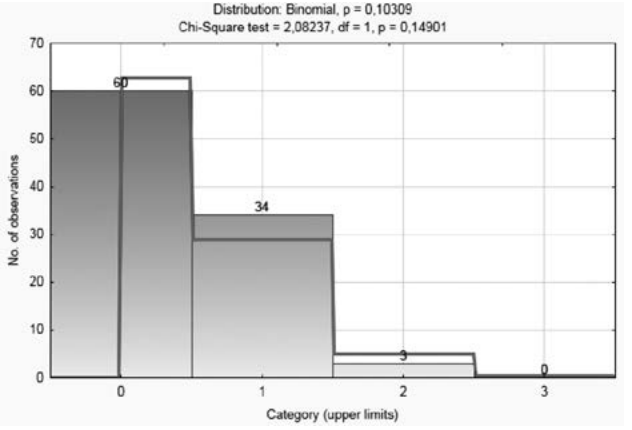

Figure 7. Histogram of the significant binomial distribution of the implementation of existing laws.
Source: Authors' compilation

The distribution of answers to the question: "Government support (guidelines, initiatives) of the development of social entrepreneurship is", with the following answers ((0) none, (1) weak, (2) good, (3) excellent), was not verified by significant (X^2=52.03395, df=1, p=0.0000) binomial distribution with parameter p=0.2010. The answers realized the mathematical expectation of 0.8041 and standard deviation of 0.4481 with mode 1 (group of 74 respondents) (Figure 8).

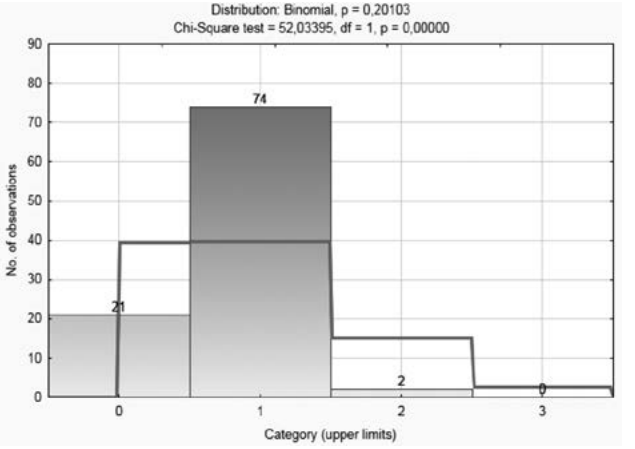

Figure 8. Histogram of non-significant binomial distribution of state government.
Source: Authors' compilation

The distribution of answers to the question: "The support of international non-governmental and governmental organizations and domestic non-governmental organizations for the development of social entrepreneurship is", with the following answers ((0) none, (1) weak, (2) good, (3) excellent), was not verified by significant (X^2=31.48027, df=1, p=0.0000), binomial distribution with parameter p=0.7010. The answers realized the mathematical expectation of 2.1030 and the standard deviation of 0.5493 with mode 2 (a group of 70 respondents) (Figure 9).

The distribution of answers to the question: "Government financial incentives for the development of social entrepreneurship are", with the following answers ((0) none, (1) weak, (2) good, (3) excellent), was not verified by significant (p=0.0000) binomial distribution with parameter p=0.1577. The answers realized the mathematical expectation of 0.6288 and the standard deviation of 0.4856 with mode 1 (a group of 61 respondents) (Figure 10).

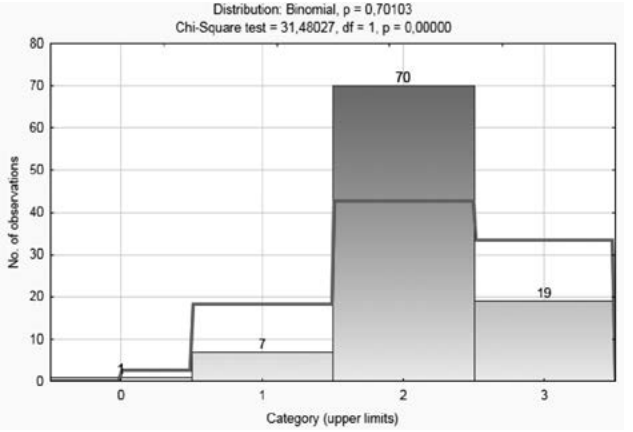

Figure 9. Histogram of non-significant binomial distribution of support of international non-governmental and governmental organizations and domestic non-governmental organizations.

Source: Authors' compilation

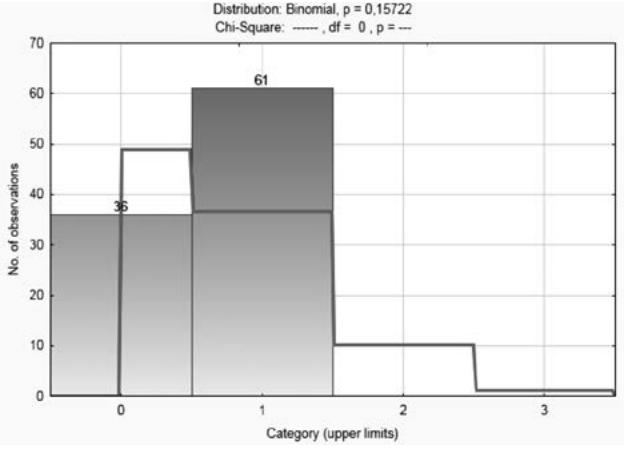

Figure 10. Histogram of non-significant binomial distribution of government financial incentives.

Source: Authors' compilation

By analyzing the variance using Duncan's test, we considered the relationship of legal platforms to the implementation of the law and the financial incentive for the development of social entrepreneurship. The distribution of answers to the question "Government support (guidelines, initiatives) of the development of social entrepreneurship is" was not verified by a significant binomial distribution (p=0.0000) and had the following answers, respectively:

(0) none	21
(1) weak	74
(2) good	2
(3) excellent	0

The mathematical expectation of 0.8041 with mode 1 (a group of 74 respondents) is consistent with the response of weak government support.

The distribution of answers to the question "Implementation of existing laws that regulate social entrepreneurship is" was verified by a significant binomial distribution (p=0.1490) and had the following answers respectively:

(0) none	60
(1) weak	34
(2) good	3
(3) excellent	0

If we set the answers to the question: "Government support (guidelines, initiatives) of the development of social entrepreneurship is" as a factor, and the answers to the question: "Implementation of existing laws that regulate social entrepreneurship is" as a dependent variable, we get the following results of Duncan's analysis of variance test (Table 3):

Table 3. The results of Duncan's test of the relationship between the implementation of existing laws in relation to government support.

	(0)	(1)	(2)	(3)
Average values:	0.0952	0.4594	2.0000	/
(0) none		0.2235	0.0001	/
(1) weak	0.2235		0.0001	/
(2) good	0.0001	0.0001		/
(3) excellent	/	/	/	

Source: Authors' compilation

Using the Signum test, we confirmed a significant difference (p=0.0000) between the distributions of the questions "Implementation of existing laws that regulate social entrepreneurship is" and "Government support (guidelines, initiatives) of the development of social entrepreneurship is". At the same time, this means that the average ratings of government support are significantly higher than the implementation of existing laws (respectively 0.8041>0.5543). There are no significant differences in the low ratings of the implementation of existing laws

between respondents who assessed that there is "no" government support or that it is "weak". In contrast, respondents who rated government support as "good", and there were only 2 of them, rated the implementation of the law significantly high.

In rare cases, when government support is rated as a good, a significant difference in this factor is highlighted. This is a standard example when government support is limited by the possibilities of implementation, which only in rare cases find the right solutions (based on the results in the table), and this significantly proves that the implementation of existing laws depends on government support.

Now let us remind that the distribution of answers to the question: "Government financial incentives for the development of social entrepreneurship are" was not verified by a significant binomial distribution (p=0.0000) and had the following answers respectively:

(0) none	36
(1) weak	61
(2) good	0
(3) excellent	0

The mathematical expectation of 0.6228 with mode 1 (a group of 61 respondents) corresponds to the response of weak government financial incentives for the development of social entrepreneurship.

If we introduce the answers to the question: "Government financial incentives for the development of social entrepreneurship are" as a dependent variable, and the answers to the question: "Government support (guidelines, initiatives) of the development of social entrepreneurship is" as a factor, we get the following results of Duncan's analysis of variance test (Table 4):

Table 4. The results of Duncan's test of government financial incentives in relation to government support (guidelines, initiatives) for the development of social entrepreneurship.

	(0)	(1)	(2)	(3)
Average values:	0.1948	0.7432	1.0000	/
(0) none		0.0382	0.0039	/
(1) weak	0.0382		0.3313	/
(2) good	0.0039	0.3313		/
(3) excellent	/	/	/	

Source: Authors' compilation

Using the Signum test, we confirmed a significant difference (p=0.0000) between the distributions of the questions "Government support (guidelines, initiatives) of the development of social entrepreneurship is" and "Government financial incentives for the development of social entrepreneurship are". It is significantly proven that financial incentives are considered as a measure of state support, and this is dominant among respondents who gave a low rating to state guidelines, initiatives, i.e. who have not had the opportunity to use financial support yet or do not recognize models for receiving state support. Their assessment of financial incentives differs significantly from respondents who rated financial support as "weak" or "good". There are no significant differences between respondents who rated state support for social entrepreneurship as "weak" or "good".

And finally, we will examine whether the support of international non-governmental and governmental organizations and domestic non-governmental organizations, which was the only one with a positive evaluation, has an impact on the level of satisfaction with the development of social entrepreneurship.

Let us remind that the distribution of answers to the question "The support of international non-governmental and governmental organizations and domestic non-governmental organizations for the development of social entrepreneurship is" was not verified by a significant binomial distribution (p=0.0000) and had the following answers respectively:

(0) none	1
(1) weak	7
(2) good	70
(3) excellent	19

The answers to this question realized a mathematical expectation of 2.1030 and a standard deviation of 0.5493 with mode 2 (a group of 70 respondents), and this corresponds to the rating of good support from international non-governmental and governmental organizations and domestic non-governmental organizations.

If this question is considered as a factor - a grouping variable, and the question "We are satisfied with the level of development of social entrepreneurship in our economic environment" as a dependent variable, the following results of Duncan's variance analysis test are obtained (Table 5):

Table 5. The results of the Duncan test of the influence of support from international non-governmental and governmental organizations and domestic non-governmental organizations on satisfaction with the level of development of social entrepreneurship.

	(0)	(1)	(2)	(3)
Average values:	0.2381	0.4729	2.0000	/
(0) none		0.063866	0.239182	0.212680
(1) weak	0.063866		0.435443	0.462251
(2) good	0.239182	0.435443		0.995812
(3) excellent	0.212680	0.462251	0.995812	

Source: Authors' compilation

The distribution of answers to the question "The support of international non-governmental and governmental organizations and domestic non-governmental organizations for the development of social entrepreneurship is" was not verified by binomial distribution, so we conclude that part of the answer was subjective. The analysis of variance in this case did not highlight significant results, i.e. the support of international non-governmental and governmental organizations and domestic non-governmental organizations does not affect the level of satisfaction with the level of development of social entrepreneurship. Therefore, dissatisfaction stems from factors that are negatively evaluated.

In developed countries, social entrepreneurship is at a very high level of development. Social entrepreneurship foundations (Ashoka, REDF, Skoll, Schwab and others) in the USA, in the period from 2003 to 2016, invested US$ 1.6 billion in the development of social entrepreneurship in the USA and the world (Spicer et al. , 2019; Chliova et al., 2020). One of 10 individuals in Australia and the US are social entrepreneurs. The contribution of social entrepreneurship in the total GDP of the EU is about 11% (GEM, 2019). There are about 2.8 million companies in the social economy in the EU, and that is about 10% of all European companies. About 13 million Europeans or about 6.3% of the working-age population work in the social entrepreneurship sector today (OECD, 2020).

In the Republic of Srpska (RS) there are certain laws that touch on social entrepreneurship in certain articles (Law on the Development of Small and Medium Enterprises, "Official Gazette of the RS", 50/13, 84/19; Law on Professional rehabilitation, employment and training of the disabled, "Official Gazette of the RS", 98/04, 91/06, 24/09, 37/12; Law on Associations and Foundations, "Official Gazette of the RS", 52/01, 42/05 ; Law on Social Protection, "Official Gazette of RS", 37/12; Law on Agricultural Cooperatives, "Official Gazette of RS", 73/08, 106/09, 78/11; Law on Lottery Games, "Official Gazette of RS ", 7/10). In 2016,

the Government of the RS developed the Employment Strategy of the Republic of Srpska 2016-2020 (Vladars.net, 2016). In 2017, the Ministry of Health and Social Protection of the Republic of Srpska developed the Strategy for Improving the Social Position of Persons with Disabilities in the Republic of Srpska 2017-2026, in which the development of social entrepreneurship is defined as one of the goals (Vladars.net, 2017). In 2018, the Ministry of Labor and Veterans and Disability Protection formed the Platform for the Development of Social Entrepreneurship in the Republic of Srpska (Vladars.net, 2018). In the Federation of Bosnia and Herzegovina, the Social Inclusion Strategy was developed, which represents the elaboration of the strategic goal of social inclusion from the B&H Development Strategy (Unicef.org, 2020). In the Federation of B&H, a Platform on social/social entrepreneurship in the Federation of B&H was created (Blc.edu.ba, 2016, pp. 130-140). In December 2021, the Law on Social Entrepreneurship was adopted in the RS ("Official Gazette of RS", number 111/21). However, this Law has not taken root in the RS yet. The law on social entrepreneurship has not been adopted on the territory of the Federation of B&H yet, as well as in the Brcko District.

According to the results of the research, the literature and the analysis of the legal framework of B&H, we see that there are certain developments regarding the laws and regulations that regulate social entrepreneurship. Certain laws, guidelines and regulations have been adopted. However, there is a big problem with the implementation of these legal regulations.

Therefore, we conclude that the development of social entrepreneurship through the establishment of an adequate legal and business environment would contribute to the development of society and economy in B&H. The model of development of social entrepreneurship will lead to the inclusion of marginalized groups of society in economic and social flows, increase in employment and decrease in social help, and this will result in the development of society and the economy of B&H. Therefore*, we confirm the research hypothesis*.

*Model of development of social entrepreneurship***.** Based on the results of empirical research and literature review, we created a model of development of social entrepreneurship (Figure 11). This model shows that a lot of things need to be done in order to bring social entrepreneurship to a satisfactory level of development. It is necessary to start from the reorganization of the ministries in the entity governments that deal with entrepreneurship issues. It is necessary to research the market thoroughly and its needs for certain activities in order to find space for the development of social entrepreneurship. On the other hand, it is necessary to identify social needs and problems in order to

know in which direction social entrepreneurship needs to be developed. It is necessary to adopt laws, create guidelines and procedures in order to create a favorable legal environment for the development of social entrepreneurship. All these steps would lead to the development of social entrepreneurship, which would ultimately lead to an increase in the inclusion of marginalized groups of society in economic and social flows, a reduction in poverty, an increase in the employment rate, a reduction in social help and a redirection of these funds to economic development, a fewer number of ecological problems and finally to an increase in the rate of economic growth.

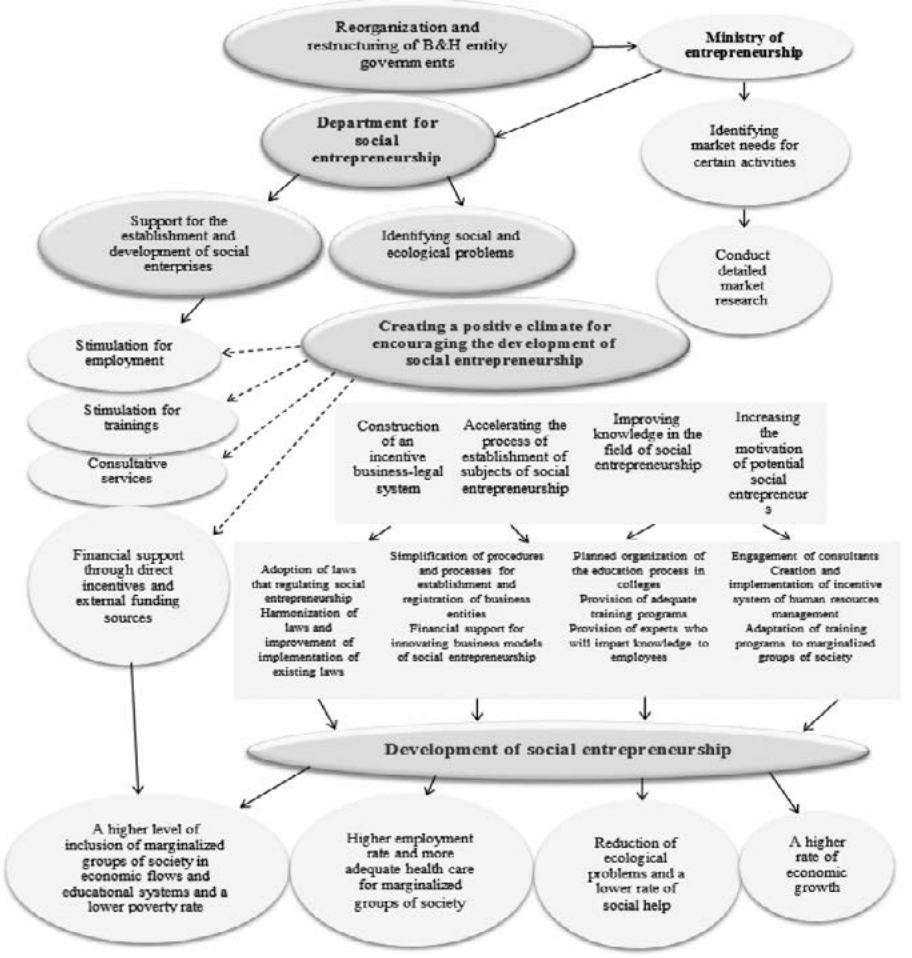

Figure 11. Model of development of social entrepreneurship.
Source: Authors' compilation

6. DISCUSSIONS

Social entrepreneurship is particularly important in transition countries. "The importance of social entrepreneurship in a certain society is inversely proportional to the level of development. That is, if the society is less developed, the importance of social entrepreneurship is greater" (Petković, 2021, p. 106). Our research also showed that social entrepreneurship is important for the development of society and economy in transition countries. Many authors state that the biggest problem in developing countries is the absence or unclearly defined legal framework that would regulate social entrepreneurship, business, rights and obligations (Halilbašić Osmanković & Talić, 2015; Bradić-Martinović & Zdravković, 2016; Nenezić & Kalezić, 2016; Prodanov, 2018; Vojvodić & Banović, 2019). This is about legal regulations that will enable the development and operation of social entrepreneurs, not laws that will trap this sector with definitions and regulations ignoring the importance of supporting this business. In our research, we proved that legal regulation is a factor that hinders the development of social entrepreneurship in B&H and that there are a lot of things that need to be done in order to start developing social entrepreneurship with favorable dynamics. Our results are supported by the research of Kraus et al. (2017), who state that the influence of social entrepreneurship is increasing, and it is reflected in the adoption of more and more neoliberal government policies related to the reduction of public spending on social inequalities and environmental challenges.

Torres & Augusto (2020) also researched the impact of social entrepreneurship on development of economy and sociaty. The absence of social entrepreneurship can contribute to a low level of national well-being (p. 6). Thus, their results as well as ours support the idea that social entrepreneurship is more important in countries where governments do not meet social needs.

Popkova & Sergi (2020) explore the directions of future development of social entrepreneurship in Russia and Asia. They also use correlation and regression methods to analyze the collected data. Like us, they encountered a similar problem: "extensive and accurate statistical data about social entrepreneurship are not available" (p. 13). Unlike our research, which covers the territory of Bosnia and Herzegovina, this research covered a huge area. Ten thousand social enterprises participated in the research (p. 14). They proved that social entrepreneurship is at a low level of development, but that it contributes to increasing the ecological effects of the economy as well as increasing education in these countries.

The significance of our research is reflected in the created model that is applicable in practice. The results of the research showed that the vast majority of respondents are dissatisfied with the level of development of social entrepreneurship in B&H and that governments do little to improve this status. The results also showed that international organizations help development of social entrepreneurship, but that this is insufficient to bring social entrepreneurship to a satisfactory level. Much greater support from domestic institutions is needed. Also, the analysis of the results showed that social entrepreneurship can contribute to the development of the economy and society through employment of marginalized groups of society, solving environmental problems, improving health and social protection, etc.

7. CONCLUSIONS

Ninety seven subjects of social entrepreneurship from all over B&H participated in this research. The research showed that social entrepreneurship is at a low level of development. We have come to the conclusion that there is not enough understanding of the importance of this area of economic activity. Some progress has been made, but not enough for social entrepreneurship to help the development of the economy and society. That is why we tried to show, with this research, what great importance social entrepreneurship has for social and economic development. This can be seen from the reviewed literature, as well as from the results of empirical research. The biggest problem we have faced with is the impossibility of finding the exact number of subject of social entrepreneurship on the territory of B&H. Not a single competent institution has information about it. We approached the respondents in various ways, through social entrepreneurship forums and associations and by respondents sharing the questionnaires among themselves. So the exact population of social entrepreneurship subjects in B&H remains unknown. What we know is that it is not a large population and that it does not have enough influence on the development of society and the economy. Investigating social entrepreneurship in B&H, we came to the conclusion that its development would contribute to the development of society and economy in B&H. We have developed a model of some steps that should be taken in order to provide an institutional framework for the development of social entrepreneurship and create a favorable business and legal environment.

The scientific and pragmatic contribution of the research. The scientific contribution is reflected in the analytical, theoretical and empirical significance of this research.

The *analytical* significance of the research represents the possibility of determining the development direction of B&H, as well as proposing a new model of rules and guidelines that will enable the development of social entrepreneurship. The new model will enable the development and innovation of social entrepreneurship, which will increase the competitiveness of this sector and thus ensure the strengthening of the economy and societies. This research contributes to the existing *theories* in this field of research. Researching the literature, we came to the conclusion that this is still an under-researched area in domestic and foreign literature. Based on the analysis of the results of empirical research, we determined how many companies and entrepreneurs in B&H generally know about social entrepreneurship and how much social entrepreneurship is developed. Results of empirical research proved that social entrepreneurship affects the development of the economy and society, bearing in mind that in many more developed countries social entrepreneurship has a significant role in solving numerous social and economic problems.

When we talk about a pragmatic contribution, this dissertation enables the application of the obtained results in practice, and that will be useful for *decision-makers in the ministries* who deal with entrepreneurship issues. The research will contribute to *managers* in social entrepreneurship entities, because it shows the possibilities and advantages of social entrepreneurship development. This research will contribute to *investors* to get to know about the advantages of social entrepreneurship. We believe that the obtained results will also be useful to the *academic community*, which will be able to learn more about the role and significance of the development of social entrepreneurship. Considering that the research in this area is relatively recent, we expect that this work will arise greater interest in the academic community for research in this field. The research should interest the *general public* in the significance of the development of social entrepreneurship, which should be the driving force for solving economic and social problems in developing countries. The research can be interesting to the *general public* because it shows the significance of the development of social entrepreneurship that should be the driving force for solving economic and social problems in developing countries.

Limitation of the research. The first limitation of the research is the modest financial possibilities, which are a big obstacle for more extensive research.

The biggest problem relates to the collection of data about the number of subject of social entrepreneurship in B&H. Not a single institution that deals with business entities and entrepreneurship has any data about the number of subjects

of social entrepreneurship, neither on which of the registered business entities are engaged in social entrepreneurship.

Future research. We leave open the questions about the number of subjects of social entrepreneurship to future researchers, questions of other influencing factors on the development of social entrepreneurship such as digitization, motivation, knowledge, sources of funding for initial business activities, etc. Future researchers can deal with obstacles to the development of social entrepreneurship in underdeveloped countries, as well as their elimination. Future researches could be focused on innovating business models and the importance of innovation in social entrepreneurship.

Conflict of interests

The authors declare there is no conflict of interest.

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УТИЦАЈ СОЦИЈАЛНОГ ПРЕДУЗЕТНИШТВА НА РАЗВОЈ ТРАНЗИЦИОНЕ ПРИВРЕДЕ И ДРУШТВА

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САЖЕТАК

У овом смо раду истражили утицај друштвеног предузетништва на развој транзиционе економије. Истраживање је спроведено на подручју Босне и Херцеговине (БиХ). Као најизраженију негативну страну транзиције видимо повећање социјалне неједнакости и сиромаштва. Један од начина рјешавања ових проблема јесте развој социјалног предузетништва. Главни циљ истраживања јесте пронаћи модел развоја социјалног предузетништва који би допринио развоју друштва и привреде земаља у развоју. У истраживању је учествовало 97 субјеката социјалног предузетништва из цијеле БиХ. Податке смо прикупили помоћу упитника, а за њихову анализу

користили смо методе корелације и регресије. Резултати су показали да је социјално предузетништво на ниском нивоу, те да би његов развој допринио развоју друштва и привреде. У овом истраживању креирали смо модел развоја социјалног предузетништва и доказали да друштвено предузетништво може бити изврстан начин рјешавања многих друштвених и економских проблема.

Кључне ријечи: *Социјално предузетништво, друштвени развој, привредни развој, привредни раст.*

MARKETING INFLUENCE ON STUDENTS LOYALTY AND FUTURE INTENTIONS IN HIGHER EDUCATION

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ABSTRACT

Applying the marketing concept in higher education can significantly improve the performance of these institutions. The role of marketing is particularly important in ensuring the loyalty of students and timely influence on their future intentions, especially nowadays when the decrease in the number of students is a big problem in our country, but also in neighboring countries. From the marketing aspect, this paper provides the results of research on the relationship between student loyalty and their future intentions in higher education. The research was conducted on students of two state universities in the Republic of Srpska. Research results show that there is a strong relationship between student loyalty and future intentions of students in higher education. The obtained results are significant for universities that want to keep students at the institution, but also to secure partners even after the completion of their studies.

1. INTRODUCTION

Loyalty in higher education is gaining importance due to the problem faced by almost all higher education institutions in the world, which is the departure of students from the institution, i.e. leaving their studies before completion. Kotler and Fox (1995) stress that retaining enrolled students is just as important as attracting them. Many authors believe that retaining existing customers or service users is more important than market share, but this requires building relationships with them. The development of a customer relationship management strategy, known in the world as CRM (Customer Relationship Management), opened up numerous opportunities for building the aforementioned relationships (Kotler & Keller, 2012, p. 152). This strategy proved to be useful for companies in order to build loyalty and attract new users, while service users received numerous

benefits such as: information about products/services, greater opportunities to compare products from different manufacturers in terms of price, quality, etc. The goal of CRM is to create long-term relationships with service users through the creation of trust. Relationship marketing is the basis for building loyalty and customer satisfaction, that is, service users. This way of managing relations with customers can also be applied in higher education. Building relationships with students is the way to improve education services, improve quality and thus increase the satisfaction of users of these services. When we talk about the loyalty that results in keeping students at the institution, it does not refer to staying beyond the regular deadline for completing studies, in the sense of renewing the years of study, but it implies completing the studies within the stipulated period. Universities apply marketing instruments for this purpose, although they all reluctantly admit it. The application of marketing instruments in higher education in no way diminishes the social importance, purpose and mission of the existence of these institutions. On the contrary, it enables them to achieve their vision and mission as well as to improve all aspects of the quality of service they provide. Students' loyalty should be viewed through the current dimension and future intentions. The current dimension refers to the spread of positive propaganda about the university, and regular attendance at classes. Attending classes improves the quality of teaching and especially motivates teachers to innovate and improve their lectures in accordance with modern methods and techniques, which is why the final results are better. Future intentions mean students staying until graduation, staying on the next cycle of studies, but also cooperation after graduation through alumni organizations. Alumni associations are made up of former students of a university. The goal of these associations is to maintain the connection of the university with its graduate students after graduation, and through them with the enterprises and companies they work for. Former students can contribute to the development of the university in various ways, such as: creating curricula, creating a university development strategy, promoting the faculty, etc. The experience of former students is very important for future students. The relationship between students' loyalty and their future intentions is the subject of research in this paper, and the following hypothesis has been put forward:

Loyalty of students is positively related to their future intentions (staying at the institution until the end of their studies, pursuing the next level of studies, and spreading positive propaganda about the institution).

The aim of the paper is to show the relationship between loyalty and future intentions of students, from the marketing aspect. Also, the aim of the work is to show the importance of applying marketing principles in non-profit

organizations such as higher education institutions, which face various problems in their functioning in modern society.

2. LITERATURE REVIEW

In the paper *A business marketing strategy applied to student retention: a higher education initiative*, the authors propose a model of managing relations with students for the purpose of retaining students in the same way as companies do to retain customers (Ackerman & Schibrowsky, 2007, p. 328). Higbee, Arendale and Lundell (2005) stated that two million students annually would drop out of college in the absence of developmental education. Student retention has become a real challenge for the academic community. The measures taken must be more effective, because every lost student means "one unfulfilled dream" and for every unfulfilled dream there are long-term consequences (Fike & Fike, 2008, p. 85). The fact is, the loss of students has bad consequences for universities, but also for the individual, family and society as a whole. The application of marketing in the field of higher education should not be understood by university managers and academic citizens as an unrealistic concept imported from the business world. Marketing in higher education should be understood as a philosophy and strategy for the development of the higher education sector, which meets the needs of domestic and international clients (Maringe, 2006). In the work *Student loyalty modeling*, Lerbin and Aritonang (2014), studying the factors of student loyalty, came to the conclusion that trust is the basic factor of loyalty and that a student who trusts an institution remains loyal to it. Many authors point out that the two most important factors that influence the achievement of student loyalty are students' trust and commitment to the institution. Trust represents "the willingness to rely on ... in whom he has confidence" (Ljubojević, 2002, p. 94). Commitment refers to the alignment of students' abilities, skills and value systems with the expectations, requirements and values of the higher education institution (Rojas-Méndez et al., 2009, according to Tinto et al., 1993). Back in 1995, Mountain Empire Community College saw a significant dropout of students, which made this problem a management priority. A faculty plan for student retention was developed and a committee dedicated to that goal was formed (Sydow & Sandel, 1996, p. 3). Haverila, Haverila and McLaughlin (2020, p. 358) came to the conclusion that different strategies for managing relations with students are applied for domestic and foreign students. Namely, the future intentions of students are different for these two categories of students. The importance of maintaining contact and relations with former students was shown in the paper *Antecedents of Student's Behavioral Intentions in Higher*

Education Institutions, where the importance of the role of the behavioral dimension, but also the cognitive dimension of future student intentions, is particularly highlighted (Binnawas, Khalifa & Bhaumick 2020, p. 1949). There are numerous researches in this area, and some of them are: Schlesinger, Cervera & Wymer (2021), Elliot & Shin (2002), Rodić-Lukić (2015), Maxwell-Stuart et al. (2018), Carvalho & de Oliveira Mota (2010), Abdelhamid, Polo Peña, & Mahrous (2020), Todea et al. (2022).

3. SATISFACTION AND LOYALTY IN HIGHER EDUCATION

After enrolling in an educational institution, students compare the perceived service with the expected one. In this sense, students evaluate in detail the quality of teaching programs, the quality of teachers, the environment in which they live, the additional values that the institution provides them in terms of equipment, libraries, sports and other activities, the availability of technology in teaching, the professionalism of non-academic staff and numerous other factors. If the perceived service is below expectations, the student is dissatisfied. If the perceived service is equal to or above the expected, the student is satisfied. In higher education, numerous studies show that perception has a great influence on student satisfaction (Alves & Raposo, 2006; Hartman & Schmidt, 1995). Namely, upon arriving at the faculty, students have already formed expectations. More often than not, these expectations are higher than what they actually experience at the university. This creates a feeling of dissatisfaction or, in the worst case, dropping out of the faculty. Taking into account the above, higher education institutions monitor and compare the perception and expectations of students, with the aim of determining the source of dissatisfaction and acting in the direction of eliminating, that is, reducing the gap between the experienced and expected feelings of students. By comparing the perception of students in relation to their personal traits, characteristics, status and other characteristics, significant data is obtained on how a certain dimension of service quality is perceived. The prerequisite for creating loyalty is customer satisfaction. It does not mean that every satisfied customer will become loyal, but to become loyal, the customer must be satisfied with the product or service. Satisfaction is a prerequisite for loyalty, but it is not the only one, which should not be neglected. It is important to take into account the intensity of satisfaction, that is, the intensity of the consumer's response to the service (Veljković, 2009, p. 176). A satisfied consumer can always replace the product with another, if a better one appears that he thinks can better satisfy his needs. This means that loyalty is only associated with an extremely satisfied consumer, fond of and enthusiastic about the product, who, in addition to buying, also spreads positive propaganda and

thus attracts new customers. What does loyalty mean in higher education? In higher education, loyalty can mean a stronger connection with students, forming a positive opinion, spreading positive propaganda, strengthening the image and reputation of the institution, staying at the university until the end of the studies, continuing the studies at the next level, and the connection after the end of the studies. This leads to a greater number of new service users and the retention of existing ones. In the secondary sense, loyalty implies the profit benefit for these institutions. Hennig-Thurau, Langer and Hansen (2001) in their research found two key determinants of student loyalty, namely the quality of teaching as perceived by students and emotional commitment to the institution. The results indicate that the impact of service quality on loyalty is about twice as great as that of commitment. The authors showed that the importance of different aspects of quality differ significantly depending on the type of study, which is a good way to develop loyalty specific to certain study programs (Hennig-Thurau, Langer and Hansen, 2001, p. 341). The Figure shows the elements of student loyalty.

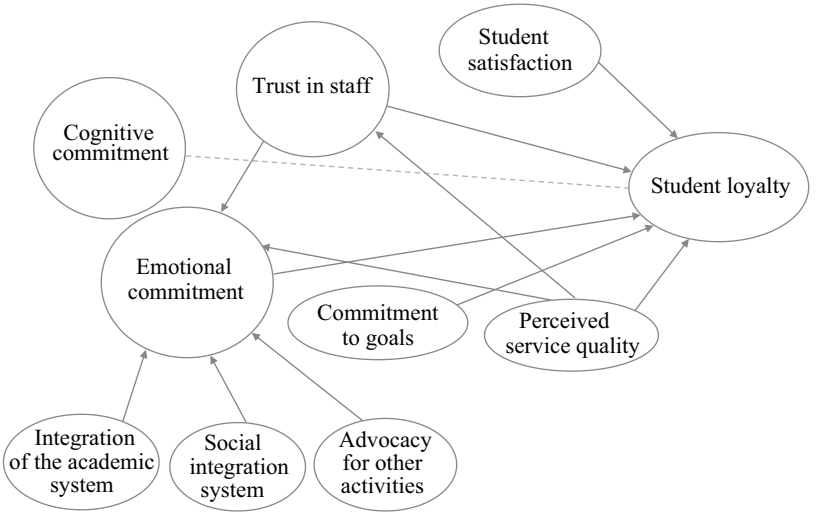

Figure 1. Elements of student loyalty

Source: Hennig-Thurau, Langer and Hansen, 2001, p. 336.

According to the figure, student loyalty is formed under the influence of the following elements: emotional commitment, cognitive commitment, and trust in teaching and non-teaching staff, commitment to goals, service quality and student satisfaction (Hennig-Thurau, Langer and Hansen, 2001, p. 336). Unlike the satisfaction of service users, which can be short-term and reflect the current state, the attitude about service quality is formed on the basis of a long-term,

overall assessment of performance. In the case of services, this is particularly important, because the quality of the service, unlike tangible goods, is not a specific goal that must be met, but an integral part of the entire service provision process and the complete management of the institution. Therefore, the issue of service quality, and therefore loyalty in higher education, is much more complex. Loyalty certainly must be based on satisfaction, but loyalty is the ultimate and basic goal of the institution. It is this commitment to the stated goal that will lead to the loyalty of existing and attracting new service users. The risk of students leaving the university will be reduced, the university will become more competitive, and the relationship between students and all employees as well as between the employees will be better. For users of services in service companies, experts recommend the business philosophy of "absolute retention of users", because these users, if they are dissatisfied with the service, do not return to the institution and cause more damage to the institution with their oral propaganda.

In education, the retention rate refers to the number of students who remain at the institution until the end of their studies. At educational institutions, it is primarily necessary to assess the losses that universities suffer from the departure of students, which are mostly of a non-financial nature. There is no universal definition of student retention or dropout. The most common understanding of retention is the time during which students remain at universities and progress towards completing their degree program within a given time frame. The concept of dropping out of school is related to a person who leaves an educational program early, before completion and graduation. The term "completion rate" refers to the estimation of the proportion of students who start studying and who will complete their studies. In some countries, graduation rates include the estimation of how many students will change majors before graduating. In order to increase retention rates, it is important that universities recognize the diversity of student needs.

4. MATERIALS AND METHODS

Empirical research in this paper included additional processing (analysis) of a sample created for the purposes of Nedeljka Elez's doctoral dissertation entitled "The role of the marketing concept in ensuring the loyalty of users of services of higher education institutions" at the Faculty of Economics of the University of East Sarajevo (Elez, 2021). For the purposes of the research, students of the University of East Sarajevo and the University of Banja Luka were surveyed. The sample included students from all scientific fields (social, humanistic, technical, natural and medical sciences). Students of all study cycles and all study

statuses were included, considering their availability (attendance at lectures). The sample used in this paper is a deliberate convenient sample, which implies that it is formed from the available units of the basic set. The number of surveyed students was 1032 students, of which 520 students from the University of East Sarajevo and 512 students from the University of Banja Luka. The survey was anonymous. The survey was conducted in the winter and summer semesters of the academic year 2018/19. Given that the survey included 1032 respondents (520 East Sarajevo, 512 Banja Luka), and that the sample should represent the phenomenon as a whole, i.e. should be as similar as possible to the phenomenon as a whole in terms of its structure and general characteristics (Dragović, 2008, p. 57), the sample was in its characteristics completely similar to the basic set because it included all categories of students and all study cycles. In accordance with the specifics of the research itself, which was carried out exclusively on the student population, it could be said that the sample was representative.

Empirical research was carried out using an instrument for collecting primary data - a questionnaire with a Likert scale. The obtained data were processed using the statistical package SPSS20. Analysis of data on satisfaction, loyalty and future intentions of service users was performed using descriptive statistics. Inferential statistics were used to prove the hypothesis. The questionnaire for measuring the satisfaction and loyalty of users of higher education services was created in accordance with the specifics of higher education institutions. The questionnaire used a 1-5 Likert scale, 1 meaning "completely false" and 5 meaning "completely true" for the given statement. The students could circle the numbers between (2, 3, and 4) according to their opinion.

The claims were arranged as follows:

- Statements 1–10 referred to the dimension of satisfaction with the service and opportunities to participate in value creation,
- Statements 11–15 referred to the dimension of students' intentions in the future,
- Statements 16–20 referred to the emotional dimension, attachment and loyalty.

The questions were structured as follows:

1. I believe that the faculty where I study has a good reputation.
2. I am satisfied with the lesson plans that are adapted to the students.
3. My colleagues and I are sufficiently involved in creating a better quality of life at the faculty in all segments (creating lesson plans, making important decisions, etc.).
4. I am satisfied with the teaching staff at the faculty.

5. I think that with the degree I get, I will be able to find a suitable job.
6. I am satisfied with the price of the study.
7. If the price were higher, I would enroll in the same study program again.
8. My expectations were met in every respect.
9. I am satisfied with the up-to-date information on the website of the faculty/university.
10. I am satisfied with the participation of the faculty/university in social networks.
11. I am willing to stay at the faculty until graduation.
12. I am ready to regularly participate in the student survey and express my opinion and suggestions for the improvement of the educational service.
13. I am ready to continue my education at the same faculty.
14. I want to stay in touch with the faculty after graduation.
15. I would recommend the faculty to others.
16. I have confidence in the employees of the faculty.
17. I feel close to the other students with whom I study every day.
18. I am proud of the faculty where I study.
19. I speak positively about the faculty to others.
20. If I were to enroll at the faculty again, I would enroll at the same one.

The empirical part of this paper is based on the research from the mentioned doctoral dissertation, but the analysis is based on a more detailed analysis of certain dimensions of loyalty and their relationship with future intentions, which was not done in the dissertation.

5. RESULTS

When examining the satisfaction, future intentions and loyalty of users of higher education services, a questionnaire with a Likert scale was applied. The questionnaire consisted of the following dimensions: satisfaction with the service and the opportunity to participate in value creation, intentions in the future, emotional dimension, commitment and loyalty. Descriptive statistical indicators were presented for each dimension.

On the dimension examining satisfaction with the service and opportunities to participate in value creation, the lowest achieved score was 10, and the highest was 50 points. The arithmetic mean was 35.65, with a standard deviation of 8.54 points. Skewness (-0.431) indicated a slight negative asymmetry, and kurtosis (-0.350) indicated a platykurtic distribution. The distribution was statistically significantly different from normal (SK=0.069, for the number of degrees of freedom 1032, p=0.000).

Table 1. Statistics - rating of satisfaction with the service

Statistics		
Satisfaction with the service and opportunities to participate in value creation		
Total number (N)	Valid	1032
	Missing	0
Arithmetic mean (Mean)		35.6502
Standard deviation (Std. Deviation)		8.53695
Asymmetry (Skewness)		-.431
Statistical error of asymmetry (Std. Error of Skewness)		.076
Flattening (Kurtosis)		-.350
Statistical error of flattening (Std. Error of Kurtosis)		.152
The minimum		10.00
The maximum		50.00
S-K	Statistic	.069
	Df	1032
	Sig.	.000

Source: Authors' calculation

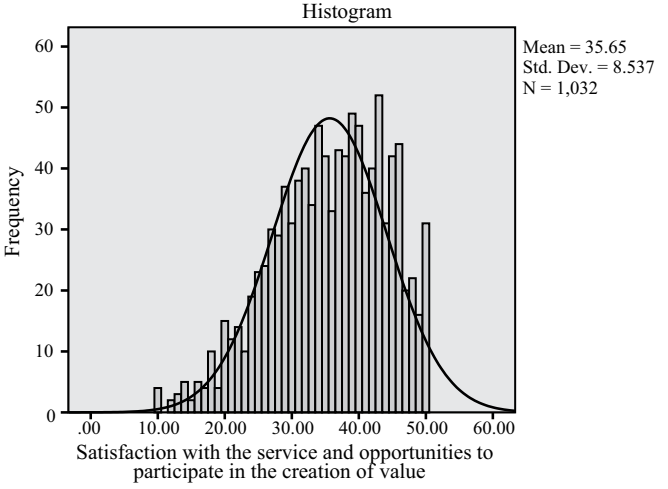

Chart 1. Service satisfaction rating

Source: Authors' calculation

When it comes to the dimension related to intentions in the future, the lowest achieved score was 5, and the highest was 25 points. The respondents achieved an average of 20.03 points, with a standard deviation of 4.49 points. Skewness (-1.024) indicated negative asymmetry, while kurtosis pointed to the conclusion that the distribution was leptokurtic. Based on the results of the Smirnov-

Kolmogorov test, which for 1032 degrees of freedom was 0.134, and which was statistically significant at the 0.01 level (p=0.000), it could be argued that the distribution was statistically significantly different from the normal.

Table 2. Statistics - assessment of future intentions

Statistics		
Students' intentions in the future		
Total number (N)	Valid	1032
	Missing	0
Arithmetic mean (Mean)		20.0291
Standard deviation (Std. Deviation)		4.48806
Asymmetry (Skewness)		-1.024
Statistical error of asymmetry (Std. Error of Skewness)		.076
Flattening (Kurtosis)		.704
Statistical error of flattening (Std. Error of Kurtosis)		.152
The minimum		5.00
The maximum		25.00
S-K	Statistic	.134
	Df	1032
	Sig.	.000

Source: Authors' calculation

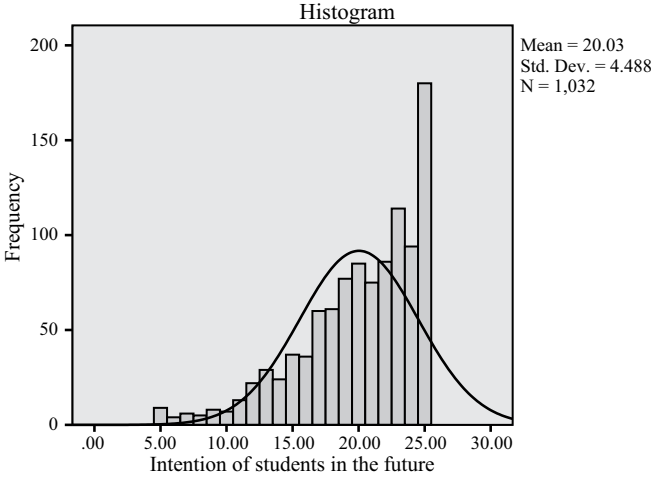

Chart 2. Assessment of future intentions

Source: Authors' calculation

On the third dimension Loyalty - commitment (emotional dimension), the lowest achieved score was 5, and the highest was 25 points. The respondents on this

dimension achieved an average of 18.94 points with a standard deviation of 4.76 points. The distribution was negatively asymmetric (skewness was -0.694) and platykurtic (kurtosis was -0.117). Testing the statistical significance of the deviation of the obtained distribution from the normal model, showed that the deviation was statistically significant (SK=0.117, for the number of degrees of freedom 1032, p=0.000).

Table 3. Statistics – Commitment assessment

Statistics		
Loyalty-Emotional dimension or commitment		
Total number (N)	Valid	1032
	Missing	0
Arithmetic mean (Mean)		18.9409
Standard deviation (Std. Deviation)		4.75933
Asymmetry (Skewness)		-.694
Statistical error of asymmetry (Std. Error of Skewness)		.076
Flattening (Kurtosis)		-.117
Statistical error of flattening (Std. Error of Kurtosis)		.152
The minimum		5.00
The maximum		25.00
S-K	Statistic	.117
	Df	1032
	Sig	.000

Source: Authors' calculation

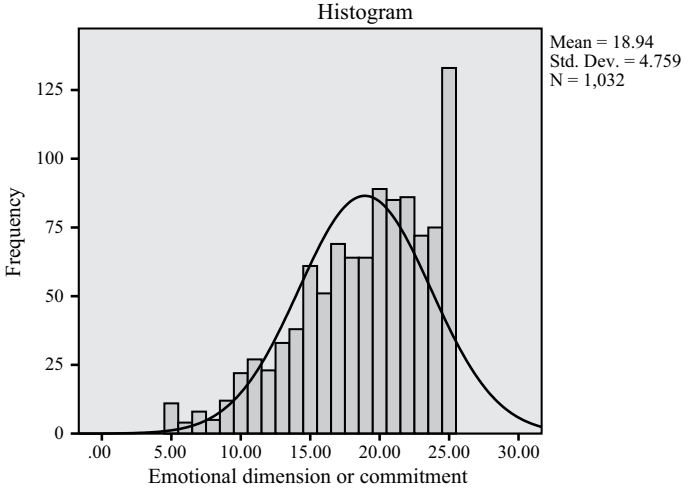

Chart 3. Commitment assessment

Source: Authors' calculation

On the questionnaire that measures loyalty, the minimum score was 20, and the maximum was 100 points. The arithmetic mean of the results was 74.62, with a standard deviation of 16.32 points. Skewness was negative (-0.651) which indicates negative asymmetry. The distribution was leptokurtic because the kurtosis was 0.79. The deviation of the obtained distribution from the normal model was statistically significant (SK=0.70, for the number of degrees of freedom 1032, p=0.000).

Table 4. Statistics – Loyalty assessment

Statistics		
Loyalty - satisfaction		
Total number (N)	Valid	1032
	Missing	0
Arithmetic mean (Mean)		74.6202
Standard deviation (Std. Deviation)		16.32630
Asymmetry (Skewness)		-.651
Statistical error of asymmetry (Std. Error of Skewness)		.076
Flattening (Kurtosis)		.079
Statistical error of flattening (Std. Error of Kurtosis)		.152
The minimum		20.00
The maximum		100.00
S-K	Statistic	.070
	Df	1032
	Sig	.000

Source: Authors' calculation

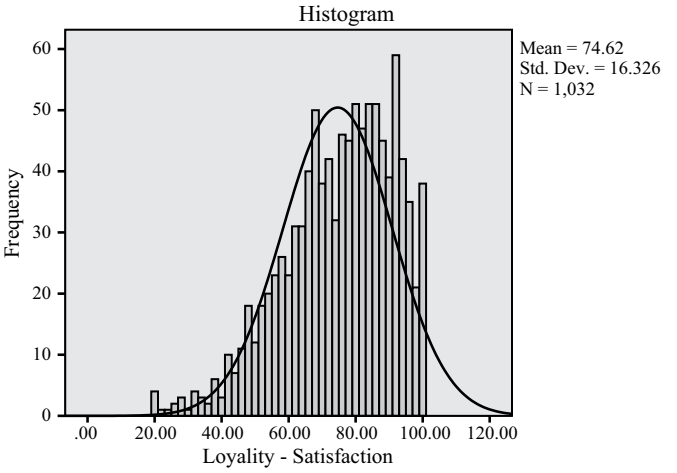

Chart 4. Loyalty assessment
Source: Authors' calculation

In order to determine whether there is a statistically significant relationship between loyalty (the emotional component of student attachment and satisfaction with the service) on the one hand, and students' intentions in the future on the other, Spearman's correlation coefficient was used, as a non-parametric alternative to Pearson's r coefficient. The non-parametric alternative was used because there were pronounced asymmetries in the distribution of the results of the mentioned variables.

Table 5. Correlations between student loyalty, commitment, satisfaction and future intentions

Correlations				
Student loyalty	Satisfaction with the service and opportunities to participate in value creation		Intention of students in the future period	
	Correlation Coefficient	.775**	Correlation Coefficient	.742**
	Sig. (2-tailed)	.000	Sig. (2-tailed)	.000
	N	1032	N	1032
Correlation is significant at the 0.01 level (2-tailed).**				

Source: Authors' calculation

6. DISCUSSIONS

In this paper, a comprehensive approach to the research of factors influencing selected dimensions in higher education was made. Regarding the dimension that examines satisfaction with the service and the possibility of participation in the value creation, based on the results shown, it can be concluded that the respondents most often achieve results above average. This means that they are satisfied with the service and opportunities to participate in the creation of value.

When it comes to the dimension related to future intentions, the presented numerical and graphical descriptive statistical indicators indicate that the majority of respondents achieve results that are higher than average. This shows that the majority of students intend to continue their education at the faculty they study in the future.

In case of the commitment dimension (emotional dimension), the results show extremely high scores, which means that students have trust and closeness to the employed academic and non-academic staff at the faculty where they study, that they speak about the faculty mostly in a positive sense, and that they would recommend the faculty to others.

Regarding the questionnaire that measures loyalty, and based on the results obtained, the indicators are above average. This means that the respondents are satisfied with the service, that there is loyalty towards their faculty.

Based on the statistical connection between loyalty (the emotional component of student attachment and satisfaction with the service) on the one hand, and the intentions of students in the future period on the other hand, and based on the values that can be read from table 5, we see that there is an extremely high correlation (0.775) between student loyalty, satisfaction with the service and the opportunity to participate in value creation. Another important fact is that this correlation is statistically significant at the 0.000 level. The above results can be interpreted in the context of the fact that students who are satisfied with the service and participate in value creation of the faculty services also show greater loyalty - attachment to the higher education institution where they study. For the correlation of loyalty and the intentions of students in the future period and the commitment of students, an extremely high correlation (0.742) was also obtained. It is statistically significant at the level of 0.000, which shows that loyalty significantly affects the future intentions of students in higher education.

7. CONCLUSIONS

The correlation between student loyalty and their future intentions in higher education is established by the following hypothesis *"Loyalty of students is positively related to their future intentions (staying at the institution until the end of their studies, pursuing the next level of studies, and spreading positive propaganda about the institution)"*. The obtained results show a high correlation of loyalty and future intentions of students. This means that students who are committed to the institution spread positive propaganda, promote the institution activities and thus attract new service users. Also, they are more willing to stay at the institution until the end of their education and to continue their studies at the next level of study. In accordance with the above, *the hypothesis was confirmed.*

Although every university thinks it takes enough care of its students, few actually take the essence of that relationship seriously. Students are what for-profit institutions call "best customers". Only when they understand this, faculties can begin to engage with students in the sense of learning about them, their needs, preferences, and the criteria they use to make decisions about choosing the faculty to study at. After that, the faculty should provide students with other opportunities, apart from leaving as a result of their dissatisfaction. The research of student wishes, needs and opinions is the first step towards improving

mutual relations and implementing a strategy for managing relations with them. Marketing in this case provides all the necessary help and tools.

Conflict of interests

The authors declare there is no conflict of interest.

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УТИЦАЈ МАРКЕТИНГА НА ЛОЈАЛНОСТ СТУДЕНАТА И БУДУЋЕ НАМЈЕРЕ У ВИСОКОМ ОБРАЗОВАЊУ

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САЖЕТАК

Примјена маркетиншког концепта у високом образовању може значајно побољшати перформансе ових институција. Посебно је значајна улога маркетинга у обезбјеђивању лојалности студената и благовременог утицаја на њихове будуће намјере, нарочито у данашње вријеме када је смањење броја студената велики проблем у нашој држави, али и у земљама окружења. Овај рад, са маркетиншког аспекта, даје резултате истраживања односа студентске лојалности и њихових будућих намјера у високом образовању. Истраживање је обављено на студентима два државна универзитета у Републици Српској. Резултати истраживања показују да постоји јака веза студентске лојалности и будућих намјера студената у високом образовању. Добијени резултати су значајни за универзитете који желе задржати студенте на институцији, али и осигурати себи партнере и након завршетка њиховог студија.

Кључне ријечи: *маркетинг, услуга, високошколске институције, студенти, лојалност, будуће намјере.*

REWARDING AND SUCCESS OF INFORMATION SYSTEMS DEVELOPMENT PROJECTS

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ABSTRACT

The purpose of the research is to determine the causes of failure of information systems development projects. We came to the hypothesis that rewarding can improve the success of information systems development projects. For this reason, it is suggested that employment contracts be tied to business results. Extrinsic and intrinsic rewards are a good motivator that affects the improvement of employee performance, i.e. increases productivity, business results and job satisfaction and contributes to increasing the success of information systems development projects. Designers and managers of information systems development projects who participated in the research, gave their views on the impact of rewards on the success of the information systems development project in response to survey questions. The attitudes were evaluated on a five-point Likert scales. We obtained additional data based on conversations with managers and designers who deal with the development of information systems. Through the research design, we determined an independent variable related to the employment contract based on business results, which is the basis for the application of various forms of remuneration, and a dependent variable related to the success of the information systems development project. The main findings of the research are related to the definition of the contract between the owner on the one hand and managers and designers on the other hand, which solves the problems of opportunistic behavior of managers and designers of information systems development project. In addition, the factors of extrinsic and intrinsic rewards that are most often used to motivate managers and designers of information systems development are defined. The practical implications of the research refer to the benefits that the company owner, managers and designers of the information systems

development will have. They will receive the best model of employment contract for employees working on the development of an information systems project. In addition, they will receive information about the views of designers and project managers related to reward factors that improve the success of the information systems development project. The originality of the research refers to the creation of a model that links the work contract based on business results with reward factors that help to increase the success of the information systems development project.

1. INTRODUCTION

The failure rate of information systems development projects is extremely high and is about 40%. It has become a practice for information systems development designers to consider failure as inevitable (Moura, Dominguez & Varajão, 2021). Researchers have identified a number of risk factors associated with the failure of an information systems development project (Hashmi, Shahzad & Izhar, 2022).

In order to solve the problem of the failure of the information systems development project, various solutions were offered, and among them rewarding designers and project managers as motivational factors for achieving the success of the information systems development project particularly stand out (Zhao, Feng, Wei & Wang, 2022).

Hasberg's theory of motivation proposes two types of rewards, extrinsic and intrinsic rewards, which are used as a motivator to achieve defined goals (Malik & Naeem, 2013).

It is expected that using these types of rewards as a motivator will solve the problem of the low level of success of the information systems development project.

In the research, designers and project managers who work on the development of the information systems project were surveyed. Their views were processed and analyzed with the aim of testing the hypotheses. The hypotheses claim that extrinsic and intrinsic rewards are a good motivator for designers and project managers and improve the success of information systems development projects.

2. LITERATURE REVIEW

2.1. The contract between the owner and the designer

The relationship between the owner on the one hand and the designer on the other hand in companies dealing with the development of information systems projects is based on a contract on the fulfillment of defined obligations (Turner & Müller, 2004).

In order to measure the effectiveness of the relationship between the owner and the designer, (Sunindijo, 2015) it is necessary to know the costs borne by the owner, as well as the results of the company's operations, i.e. indicators of financial success. The goal is to achieve the highest level of efficiency of the contractual relationship between the owner and the designer (Todorović, Tomaš & Todorović, 2020).

The solution to the designer's opportunistic behavior (Gurcaylilar-Yenidogan & Erdogan, 2023) and the reduction of agency costs can be achieved by a well-defined contract between the owner and the designer. The purpose of the contract is to reduce or eliminate the designer's opportunistic behavior and to force the designer to work in the interest of the owner, and to receive an adequate reward for that loyalty.

Contracts can be complete or incomplete (Badenfelt, 2011) as shown in Figure 1.

Full contracts are used when the situation is certain. If the cost of control is high, then contracts are concluded based on the achieved business results. When control costs are low, then contracts are based on behavior.

Incomplete contracts are used for uncertain situations and in these contracts, in addition to the owner and designer, a third party is involved, which can be a notary or a court.

A complete contract specifies the rights and obligations of each party. The contract is clear and unambiguous. The information is known to both parties, that is, there is no asymmetric information that would allow the occurrence of moral hazard, unfavorable selection or dispute (Kujala, Nystén-Haarala & Nuottila, 2015).

In this paper, we will deal only with the situation in which complete contracts are concluded and where the cost of control is high, that is, where contracts are concluded based on the achieved business results.

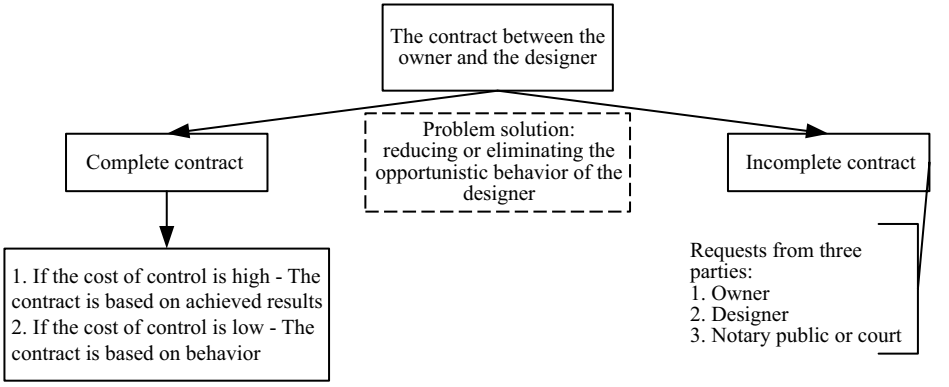

Figure 1. Contract between the owner and the designer

Source: Authors' compilation

In this contractual situation, a contract is concluded which, in addition to the basic salary, offers the designer various forms of rewards for achieving the agreed results.

2.2. Rewarding the designer

The reward system deals with the strategies, policies and processes needed to ensure that the contribution of people in the organization is recognized and rewarded with financial and non-financial means (Shneor, Mrzygłód, Adamska-Mieruszewska & al., 2022). In practice (reward processes, practices and procedures) it is about the design, implementation and maintenance of the reward system (Fink, Wyss & Lichtenstein, 2018), which aims to satisfy the needs of the owner and designer. The overall goal is to reward people justly, fairly and consistently (Chamtitigul & Li, 2021) in accordance with their value to the organization, and in order to advance the achievement of the organization's strategic goals (Nguyen, 2020).

Reward management is not only salary and employee benefits, but also non-financial rewards such as recognition, learning and development opportunities, and increased job responsibility.

Figure 2 shows the total reward system with basic elements: definition of the total reward system; the purpose of the total reward system; the functioning of the reward system; reward system design, types of rewards and social partners in the reward system.

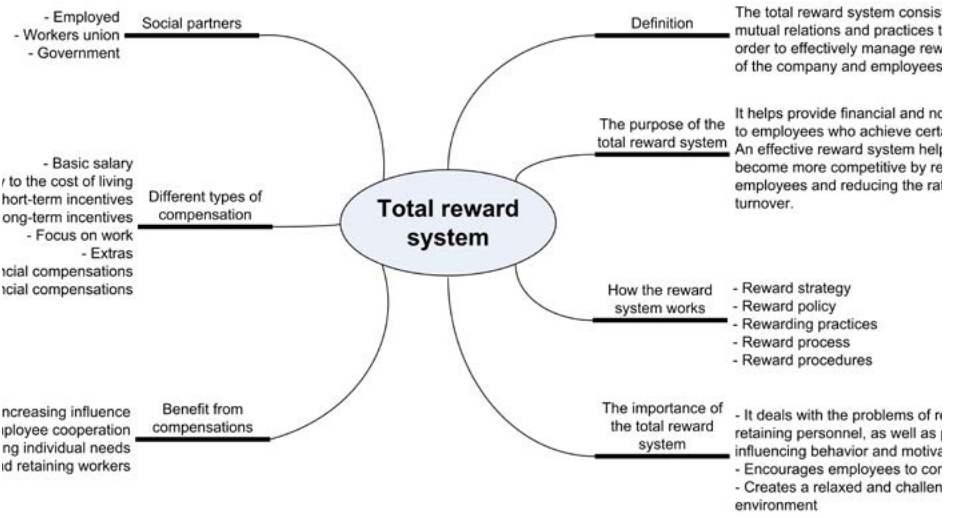

Figure 2. Total reward system

Source: Authors' compilation

The reward is usually something of value (Tan, Teoh & Cheah, 2019), such as money. There are two types of rewards. Extrinsic rewards are concrete rewards that employees receive such as: salary, bonuses and benefits. Intrinsic rewards tend to give personal satisfaction to an individual such as: using knowledge and skills, advancement, career development, gaining new obligations and responsibilities, creativity and independence in performing tasks (Figure 3.)

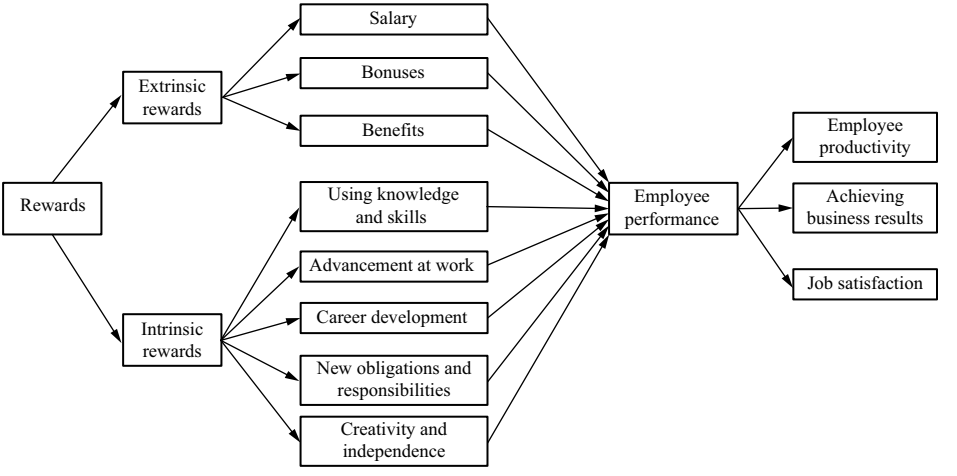

Figure 3. Extrinsic and intrinsic rewards

Source: Authors' compilation

2.3. The success of the information systems development project

The success of the information systems development project is interpreted differently (Razzaq, Huang, Sun & Xie, 2019). One group of authors (Puche Regaliza, Jiménez & Val, 2017) suggests that projects be evaluated as successful if they are completed within the planned time, defined budget and quality. Other authors (Eichhorn & Tukel, 2018) emphasize that the designer must primarily satisfy the wishes and requirements of the user.

The third group of authors (Einhorn, Meredith & Marnewick, 2022) emphasizes that the project must achieve the defined goals of the project, and that it was completed within the foreseen time and within the planned budget.

If we summarize the factors on the basis of which the success of the project is evaluated, we can group them as:

1) client satisfaction, i.e. acceptance of the project by the client,
2) perceived quality of the project, i.e. that the project affects the improvement of the user's performance,
3) successful implementation of the project, i.e. that the project was completed within the plan and budget and meets the specified requirements.

In addition to the numerous tools and techniques developed for managing information systems development projects, we still have a large number of failed projects. Tools and techniques alone will not do much (Ciric Lalic, Lalic, Delić, & Gracanin, 2022). It is similar to having a quality musical instrument. A musical instrument does not create music, but a musician on that musical instrument creates music. The same is true of information system project management. Project management tools and techniques do not manage the project, the designers and the project manager do. Tools and techniques can speed up some activities, but the knowledge and skills of designers and project managers are crucial. Inadequate knowledge and skills of designers and project managers are more likely to cause project failure than lack of project management tools and techniques.

The team of designers is led by a team leader and he or she is in charge of connecting individual competencies of designers with group competencies with the aim of creating team competencies. That's why he needs to create a complementary team, which has good communication and commitment. Then the projects will be cheaper, that is, they will cost less. It will be better and of better quality, that is, it will fulfill the wishes and demands of the users. They will finish faster, that is, they will be finished in the predicted time schedule.

The manager tries to motivate the designers by offering them various types of rewards and achievements to achieve the defined goals of the project (Todorović, Todorović & Tomaš, 2020).

3. MATERIALS AND METHODS

Only respondents who were willing to voluntarily participate in the research took part in the research. The research examined the attitudes of 30 employees who work on the development of information technology projects. Individual and average assessments of respondents represent the opinion of those persons, and not the position of the organization in which they are employed.

In this study, an open and closed questionnaire was used. This is because the fact that for sensitive topics that require fixed answers and where less articulation is needed, open-ended questions are suitable.

The study is designed to evaluate the influence of the independent variables on the dependent variable.

Respondents were asked to express their perceptions using a five-point scale Likert scale.

Table 1. Five-level Likert scale of perception

Agreement				
1	2	3	4	5
I don't agree at all	I do not agree	I'm undecided	I agree	I completely agree
Frequency				
Never	Rarely	Occasionally	Often	Very often
Significance				
It doesn't matter	Little important	Moderately important	Important	Very important
Probability				
Almost never right	Usually not true	Occasionally true	Usually true	Almost always right

Source: Authors' compilation

The percentage of perception ranges from 0% to 100%. Zero percent is when the perception is negative (1), and a hundred when the perception is maximally positive (5) is 100 %.

After the research was conducted, a conversation was held with randomly selected respondents and the summary results of the research were presented. We asked them to give comments on certain characteristic items.

Research design

The research design is based on the assumption that company owners offer project managers and designers work contracts that are based on business results. Various types and forms of rewards are defined in the contracts. The owners have at their disposal numerous opportunities for motivating and rewarding the designer and manager of the information systems development project.

Extrinsic motivation and rewards influence the satisfaction of designers to achieve rewards or avoid unwanted consequences. In extrinsic rewards, in addition to a fixed salary, bonuses and benefits are offered.

Intrinsic motivation comes from the designer himself who performs certain work activities for his own satisfaction. Intrinsic motivation and rewards refer to: the possibility of using one's own knowledge and skills, the possibility of advancement, the possibility of learning and personal development, receiving more responsible tasks and creativity and independence in performing tasks.

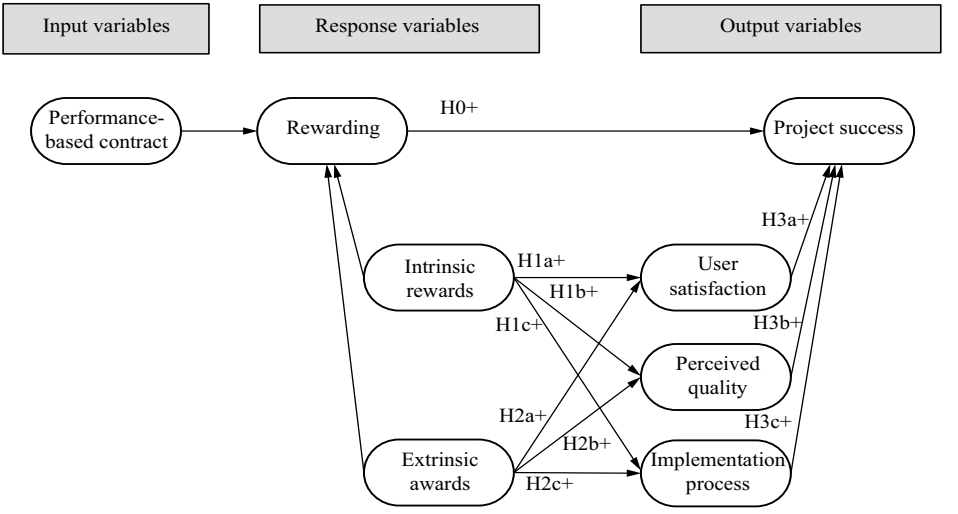

Figure 4. Research model

Source: Authors' compilation

Based on the draft of the research, we set the following hypotheses in the paper:

H_0 – The main hypothesis

If the cost of controlling the manager and the project team is high, then the owner will conclude a full contract based on the achieved business results and using rewards as motivation to achieve project success.

H_1 – Hypothesis

Intrinsic rewards have a positive effect on user satisfaction, perceived quality and the project implementation process, that is, on the overall success of the information systems development project.

H_2 – Hypothesis

Extrinsic rewards have a positive effect on user satisfaction, perceived quality and the project implementation process, that is, on the overall success of the information systems development project.

4. RESULTS

Awarding managers and designers with the aim of obtaining a quality design and implementation of the information systems development project was carried out on the basis of extrinsic and intrinsic awards. The mean value of perception and percentage of perception of all respondents is shown in Table 2, 3, 4 and 5.

Table 2 shows the mean values and percentage of the perception of all respondents about the impact of rewards on the success of the information systems development project. The respondents' perception was measured on a five-point scale. On the Likert scale, it has a mean value of 3.86 or 77.2% of the total value. The reported values are close to value 4 on the Likert scale, which represents agreement with the stated attitudes.

Table 2. Remuneration of managers and designers

Awards	Likert scale from 1-5 Mean value of perception	% of perception
ER Extrinsic rewards	3.95	79.0
IR Intrinsic rewards	3.77	75.4
Total - average	3.86	77.2

Source: Authors' compilation

Rewarding is represented by extrinsic and intrinsic rewards. The respondents' evaluations show that they believe that extrinsic and intrinsic rewards are approximately equally influential as motivators for the successful completion of an information systems development project. Extrinsic rewards have a mean value of 3.95 or 79%, intrinsic rewards have a mean value of 3.77 or 75.4%.

Extrinsic rewards are presented in Table 3 and are divided into three basic constructs: salary, bonuses and benefits. In Table 3, bonuses are divided into

three subcategories: bonuses for achieved results, bonuses for meeting deadlines and bonuses for savings. Benefits are divided into three subcategories: health and safety benefits, time off and flextime benefits, and other benefits. The constructs that were evaluated and have the highest level are basic salary with a mean value of 4.82 (96.4%) and bonuses based on achieved results with 4.71 (94.2%). The construct with the lowest level is other benefits and conveniences with a mean value of 3.21 (64.2%).

Table 3. Extrinsic rewards

Extrinsic rewards	Likert scale from 1-5 Average value perception	% of perception
ER01 Basic salary	4.82	96.4
ER02 Bonuses for achieved results	4.71	94.2
ER03 Bonuses for meeting deadlines	3.98	79.6
ER04 Bonuses for savings	3.63	72.6
ER05 Safety and health benefits	3.44	68.8
ER06 Benefits of free and flexible time	3.86	77.2
ER07 Other benefits and benefits	3.21	64.2
Total - average	3.95	79.0

Source: Authors' compilation

Intrinsic rewards are presented in Table 4 and are divided into five constructs, namely: use of knowledge and skills, advancement in work, career development, obtaining new obligations and responsibilities, and creativity and independent work in the execution of tasks. The construct rated at the highest level is career development with a mean value of 4.42 (88.4%). The construct with the lowest level is new obligations and responsibilities with a mean value of 3.38 (7.6).

Table 4. Intrinsic rewards

Intrinsic rewards	Likert scale from 1-5 Mean value of perception	% of perception
IR01 Use of knowledge and skills	3.72	74.4
IR02 Advancement in work	3.62	72.4
IR03 Career development	4.42	88.4
IR04 New obligations and responsibilities	3.38	67.6
IR05 Creativity and independence in performing tasks	3.72	74.4
Total - average	3.77	75.4

Source: Authors' compilation

The success of the information systems development project was measured by three dimensions: user satisfaction, perceived quality and the implementation process. The mean value of perception and the percentage of perception of all respondents is shown in Tables 5, 6, 7 and 8.

Table 5 shows the mean values and percentage of the perception of all respondents about the influence of individual elements for the success of the project on the overall success of the information systems project. The perception of the respondents who evaluated the success of the information systems development project based on the five-level scale. The mean value of the Likert scale is 3.88 or 77.6% of the total value. The reported values are close to value 4 on the Likert scale, which represents agreement with the stated attitudes.

Table 5. Project success

Awards	Likert scale from 1-5 Mean value of perception	% of perception
SC User satisfaction	4.19	83.8
Q Participated quality	4.07	81.4
I Implementation process	3.37	67.4
Total - average	3.88	77.6

Source: Authors' compilation

Table 6 shows the sub-elements of the user satisfaction construct, namely: the project that was developed is used by its users and the project contributes to increasing the efficiency and effectiveness of employees. Both sub-elements have a high level of agreement over 4, i.e. the project that was developed is used by its users has a level of agreement of 4.31 or 86.2% and the project contributes to increasing the efficiency and effectiveness of employees has a level of agreement of 4.07 or 71.4%.

Table 6. User satisfaction

User satisfaction	Likert scale from 1-5 Mean value of perception	% of perception
SC01 The project that was developed is used by its users	4.31	86.2
SC03 The project contributes to increasing the efficiency and effectiveness of employees	4.07	81.4
Overall – average 4.15	4.19	83.8

Source: Authors' compilation

Table 7 shows the sub-elements of the participatory quality construct with values: the project fulfilled the wishes and requirements of the users 4.17 (83.4%), the project showed significant improvements in the implementation of activities 4.14 (82.8%). The project results had a positive impact on business decision-making 3.86 (77.2%) and the project results had a positive impact on the organization's performance 4.12 (82.4%). The expressed values are above the value 4 on the Likert scale, which represents agreement with the stated attitudes, except for the value of the project results that had a favorable effect on the making of business decisions, which has a value of 3.86.

Table 7. Participating quality

Participating quality	Likert scale from 1-5 Mean value of perception	% of perception
Q01 The project fulfilled the wishes and requirements of the users	4.17	83.4
Q02 The project has shown significant improvements in the implementation of activities	4.14	82.8
Q03 The results of the project had a favorable impact on business decision-making	3.86	77.2
Q04 The results of the project had a positive impact on the performance of the organization	4.12	82.4
Total - average	4.07	81.4

Source: Authors' compilation

Table 8 shows the sub-elements of the implementation process construct with the following values: the project was implemented without major problems and errors 3.50 (70%), the project was completed within the foreseen deadlines 3.32 (66.4%), and the project was completed within the budget 3.19 (67.4%). The expressed values are above value 3 on the Likert scale, which represents partial agreement with the stated attitudes.

Table 8. Implementation process

Implementation process	Likert scale from 1-5 Mean value of perception	% of perception
I01 The project was implemented without major problems and errors	3.50	70.0
I02 The project was completed on time	3.32	66.4
I03 The project was completed within the budget	3.19	63.8
Total - average	3.37	67.4

Source: Authors' compilation

5. DISCUSSIONS

This research supports the hypothesis that in conditions where the costs of controlling the execution of work activities of project managers and designers in the development of information systems projects are high, the owner of the company concludes a labor contract with the project manager and designers based on the achieved business results. In this way, he will be able to use the reward as a motivation to achieve the success of the project. Analyzing the data collected through the survey, the level of agreement with the questions about the impact of rewards on the success of projects was 3.86 (on a Likert scale from 1 to 5), i.e. 77.2% agreement, which means that the respondents agree with the stated impact (Figure 5.).

In further discussion with the project managers and designers, they believe that the best model for the work contract is a complete contract based on the achieved results. This type of contract further motivates them to increase productivity, achieve defined business results and be satisfied with their work. Therefore, rewarding has a positive effect on the success of the information systems development project, i.e. on its quality, completion deadlines and budget.

For performance-based work contracts for which a fixed salary is determined, they believe it is not applicable for the project manager and designers, but it is applicable for the administrative staff associated with the information systems development project.

Until now, it has not been the practice to conclude employment contracts as incomplete contracts and to protect risks by introducing a third party, i.e. a notary or a court.

Intrinsic rewards, which are based on the personal satisfaction of individuals, that is, their sense of contribution and self-importance, were significantly valued with a total score of 3.77 or 75.4% satisfaction. Based on these data, the first auxiliary hypothesis is confirmed, i.e. that intrinsic rewards have a positive effect on user satisfaction, perceived quality and the project implementation process, i.e. on the overall success of the information systems development project.

The most valued item was career development with 4.42 or 88.4%. In the conversation with the designers, they pointed out that career development in the field of information technology is very important, as technology, knowledge and skills quickly become obsolete, and thus reduce their competence and competitiveness on the labor market.

Extrinsic rewards based on employee earnings were evaluated with an overall rating of 3.95 or 79% satisfaction. Based on these data, the second auxiliary hypothesis is confirmed, i.e. that extrinsic rewards have a positive effect on user satisfaction, perceived quality and the project implementation process, i.e. on the overall success of the information systems development project.

The most valued items related to material income of employees. The basic salary was valued at 4.82 or 96.4%, and the bonuses for the achieved results were valued at 4.71 or 94.2%. In the conversation with the designers, they pointed out that material rewards are the biggest motivator for achieving business results, but that bonuses and benefits are also an important motivator.

Analyzing how certain items of the project affect its success, we see that user satisfaction is the most important item and was rated with 4.19, i.e. 83% satisfaction, while perceived quality had an effect of 4.07 or 81.4% satisfaction, and the implementation process had an effect of 3 .37 or 67.4% satisfaction.

In conversations with respondents, they stated that the implementation process had the least impact on the success of the project, 3.88 or 77.6%. As an explanation, they stated that in practice, during implementation, certain problems and small errors appear that the user tolerates and does not significantly affect his satisfaction and the quality of the project.

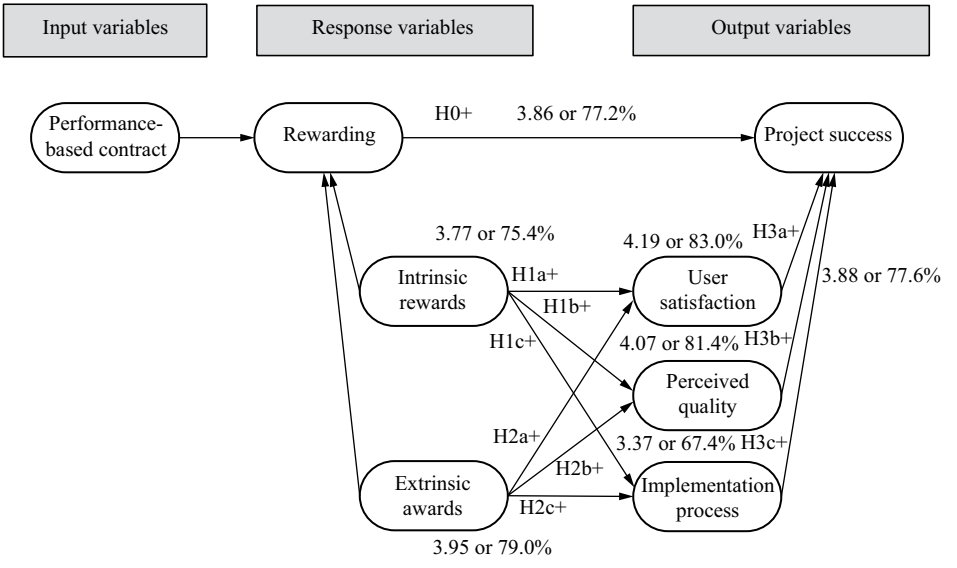

Figure 5. Model analysis results

Source: Authors' compilation

6. CONCLUSIONS

Poor performance of information systems development projects has become a problem for project companies, project users and society as a whole. In order to try to solve this problem, this research tried to give an answer regarding the impact of rewards, i.e. intrinsic and extrinsic rewards, on the success of information systems projects.

The answers to the questions can help owners, project managers and designers create better labor contracts based on business results. Owners can analyze all models of employment contracts and find the model and reward methods that best suit their goals and needs. In addition, owners can have useful information related to motivating project managers and designers to achieve the success of the information systems development project.

Designers can use the information for future labor contract negotiations with owners.

Also, the research confirmed that by using the Likert scale it is possible to obtain information and attitudes of individual respondents on the basis of which valid conclusions and recommendations can be made.

Conflict of interests

The authors declare there is no conflict of interest.

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НАГРАЂИВАЊЕ И УСПЈЕХ ПРОЈЕКАТА РАЗВОЈА ИНФОРМАЦИОНИХ СИСТЕМА

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САЖЕТАК

Сврха истраживања се односи на утврђивање узрока неуспјеха пројеката развоја информационих система. Пошли смо до хипотезе да награђивање може побољшати успјешност пројеката развоја информационих система. Стога се предлаже да уговори о раду буду везани за резултате пословања. Екстринзичне и интринзичне награда су добар мотиватор који утиче на побољшање перформанси запослених, односно на повећање продуктивности, резултата пословања и задовољства послом, те доприноси повећању успјешности пројеката развоја информационих система. У истраживању су учествовали пројектанти и руководиоци пројеката развоја информационих система који су у анкетним питањима изнијели своје ставове о утицају награђивања на успјешност пројекта развоја информационих система. Ставови су вредновани на основу петостепене Ликертове скале. Додатне податке смо прикупили тако што смо разговарали са руководиоцима и пројектантима који се баве развијем информационих система. Дизајном истраживања утврдили смо независну варијаблу која се односи на уговор о раду темељен на резултатима пословања, који је основа за примјену разних облика награђивања и зависну варијаблу која се односи на успјех пројекта развоја информационих система. Главни налази истраживања су везани

за дефинисање уговора између власника, са једне стране, и руководиоца и пројектаната, са друге стране, чиме се рјешавају проблеми опортунитетног понашања руководиоца и пројектаната развоја информационих система. Поред тога, дефинисани су фактори екстринзичних и интринзичних награда који се најчешће користе код мотивисања руководиоца и пројектаната развоја информационих система. Практичне импликације истраживања односе се на користи које ће имати власник компаније, те руководиоци и пројектанти развоја информационих система. Они ће добити најбољи модел уговора о раду за запослене који раде на развоју пројекта информационих система. Поред тога, добиће информације о ставовима пројектаната и руководиоца пројекта везаних за факторе награђивања који побољшавају успјешност пројекта развоја информационих система. Оригиналност истраживања односи се на креирање модела који повезује уговор о раду темељен на резултатима пословања са факторима награђивања који помажу да се повећа успјешност пројекта развоја информационих система.

Кључне ријечи: *интринзичне награде, екстринзичне награде, задовољство корисника, квалитет пројекта, процес имплементације пројекта.*

THE IMPACT OF CURRENCY DEPRECIATION ON EXPORTS: AN AUTOREGRESSIVE DISTRIBUTED LAG APPROACH FOR TURKISH LIRA

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ABSTRACT

Turkey experienced many economic crises during the 90s and 2000s, and international trade activities changed drastically as the Turkish currency "Lira" fluctuated severely. The Turkish lira has depreciated rapidly against foreign currencies in recent years, affecting Turkey's international trade activities. The research uses Autoregressive Distributed Lag (ARDL) bounds testing to investigate the effect of the Turkish Lira depreciation on Turkish exports from 1990 to 2020. The findings suggest that the exchange rate is related to exports in both short and long run. In contrast, the inflation rate has a negative and insignificant long run influence on exports, but a negative and significant short run effect. Furthermore, imports have a negative and insignificant impact in the long run, while exports have a positive and significant effect in the short run. In the long run, the deposit interest rate is positive but insignificant at 1 percent and 5 percent significance levels. These results suggest that Turkey should produce its intermediate goods in anticipation of the high exchange rate and export high-value-added technology-intensive products to eliminate the dependency of Turkey's exports on imports.

1. INTRODUCTION

Integrating with the global economy assists countries in increasing economic growth and development while decreasing poverty. With the foundation of the World Trade Organization (WTO) in the early 1990s, the process of trade liberalization advanced, and developing nations, in particular, became considerably more significant in global trade, substantially raising their incomes (IMF, 2001). Yet, trade liberalization has caused significant issues with the exchange rate throughout the years.

The first effect for any economy is that an inflated exchange rate leads to a balance of payments deficit since trade liberalization causes import prices to fall and import volumes to increase.

If export production reacts with a slight lag to more favorable incentives and if trade policy removes an anti-export bias, countries are likely to experience balance of payments deficits and overvalued currency real exchange rates. If the currency's real exchange rate continues to be overvalued, it could become unsustainable to discriminate against export (Collier & Gunning, 1992). On the other hand, a sustained excessive depreciation of the currency after trade liberalization could unnecessarily increase import prices for producers and consumers, reverting some of the pre-liberalization anti-export biases back into production. A chronic over-depreciation of a currency as a result of trade liberalization, on the other hand, may raise import prices for both producers and consumers, restoring part of the output's pre-liberalization anti-export bias.

Foreign trade tactics are crucial for growing economies such as Turkey. Turkey, which began a revolutionary trade transformation process in 1980, transitioned its trade liberalization policies within the context of the post-1980 liberalization trend (Utkulu & Seymen, 2004). Turkey's trade activity has also increased after the adoption of the Customs Union Decision in 1995. As a result, Turkey removed custom taxes on industrial items from the European Union (EU).

During the 1990s and 2000s, Turkey faced several economic crises, and foreign trade activity altered dramatically as the Turkish currency "Lira" fluctuated dramatically. From 1970 to 2020, the proportion of intermediate and investment products in total imports in Turkey varied between 80% and 90%. In 2020, roughly 75% of all imports were intermediate products, with the remaining 15% being investment items. Because the import of intermediate products is required for increased production and economic growth, the import of these commodities is highly sensitive to price variations. Despite rising investment goods prices, these items must be imported to ensure production continuity. As a result, given the wide range of imported goods, it is difficult for the actual exchange rate to have an influence on imports. As a result of the variety of items in imports, the actual exchange rate has a tough time influencing imports. Because consumer items account for almost half of overall exports (40% in 2020), the actual exchange rate may have a greater impact on exports. Yet, because intermediate and investment goods account for nearly 60% of total exports, and imports of intermediate and investment goods are required for the manufacturing of these items, imports are unavoidable for increased production and exports. As a result, the effect of the real exchange rate on exports is expected to be bigger than the effect on imports in the short run (Çatalbaş, 2021).

In recent years, the Turkish lira has depreciated fast against foreign currencies, harming Turkey's international commercial activity. The primary goal of this research is to examine the economic consequences of the Turkish lira's depreciation on international trade. This study specifically intends to:

- analyze the trend and pattern in the exchange rate connected to Turkey's international trade operations; and
- evaluate the significance of Turkish Lira indicators in the Turkish trade process.

Unlike the existing literature about the exchange rate-trade relationship in Turkey, the study adds other important variables, such as deposit interest rate and inflation, to the model. In general, in countries where price stability is unstable and prices tend to increase, the directing of exports to other countries causes a decrease in export rates. However, it paves the way for the import of these goods from other cheap countries and increases imports. Because Turkey's final exports are dependent on importing raw material and semi-finished goods, the effect of inflation is especially crucial to be examined. Besides, monetary policy decisions are effective on exchange rate. For this reason, the deposit interest rate has been added to the model.

This paper is divided into the following sections: the second and third section examines the theoretical literature and empirical literature, respectively; part four covers the estimation method used in the analysis; section five includes the findings and discussion, while section six includes the conclusions and policy recommendations.

2. THEORETICAL LITERATURE REVIEW

Currency depreciation is generally defined as the decline in the value of a currency at its exchange rate relative to other currencies. Although devaluation and depreciation are separate phenomena, the main impact on a currency remains the same. Both lead to a devaluation of the national currency in terms of foreign currency. Therefore, both benefits will be broadly similar (Bhatia, 2022).

There are several ideas on how devaluation and depreciation impact trade balance. In its most basic form, "classical trade theory" refers to trade in goods and services using the real exchange rate. All other factors held constant, trade theory argues that exchange rates can affect an economy's imports and exports (Adeyemi & Oseni, 2021).

Lerner (1944) extended the classical trade theory by considering the price elasticity of import and export demand as essential factors for assessing the impact of exchange rate fluctuations on the trade balance. Increased exports and decreased imports as a result of currency depreciation may not always imply a trade balance adjustment or improvement. According to the "exchange rate elasticity approach" (Krueger, 1983), transactions made during a depreciation or devaluation may dominate a short-term trade balance adjustment. That is, the trade balance initially worsens during the 'contract period' until the volumes of exports and imports adjust. Export and import elasticity increases with time, quantities respond to changing effective prices, and the trade balance improves. According to Williamson (1983), higher import costs due to devaluation may result in the higher local price of non-traded commodities. In general, inflation increases the effective real exchange rate, reducing the possibility of an improvement in the trade balance.

A depreciation or devaluation diminishes the real money supply, resulting in an excessive demand for money, according to the monetary approach to the exchange rate. This leads to stockpiling and increased trade balance (Upadhyaya & Dhakal, 1997). Krugman (2016) also argued that the real exchange rate is essential for correcting trade balances and significantly influences commerce. Devaluation is especially critical when capital inflows are unsustainable. He criticizes "elasticity pessimism" which maintains that trade flows do not respond to price signals and currency devaluation.

Because the theoretical overview does not provide a clear response concerning the relationship between currency depreciation and international trade, an overview of empirical research is required, which is the focus of the next section.

3. EMPIRICAL LITERATURE REVIEW

There is no consensus in the empirical literature examining the relationships between exports, imports and real exchange rates. There is no association between these variables in many studies. In many studies, sometimes very significant relationships were found among these variables while sometimes no significant relationships were found among them. In Armenia, for example, Barseghyan & Hambardzumhyan (2017) inspected the effect of exchange rate changes of Armenian exports on its major trading partner between 2007 and 2016. They accepted that exchange rate changes will have a significant negative impact on exports in both short and long term. Kumar, Begam & Nargis (2020) examined the impact of currency depreciation on exports of SAARC countries - Bangladesh, India, Pakistan and Sri Lanka from 1981 to 2017. The panel ARDL

model revealed a reverse relationship between the currency depreciation and exports in the long run, as well as a significant role for ECM in the short run. Contrary to Kumar, Begam & Nargis (2020), Alemu & Lee (2014) found no evidence for the effect of depreciation to improve trade balance for 14 Asian economies.

Oluitan, Anifowose & Arokoyo (2021) analyzed the impact of currency fluctuations on the export revenue of the selected African countries from 1990 to 2019. For the estimation of the variables, GMM is applied. They revealed that the inflation rate has a positive, but without significance effect on the export revenue of the selected countries. Dilanchiev & Taktakishvili (2021) used monthly GEL exchange rate data from May 2006 to April 2020 to examine the impact of the deprecation of the Georgian lari on exports. In this study, an ARDL model was applied. They observed that currency depreciation has a negative long-run effect on exports. The findings show that the influence of the exchange rate on Georgian exports reveals inelastic demand for Georgian export goods. Adeyemi & Oseni (2021) investigated the association between currency depreciation and Nigerian trade balance. Using the ARDL model, the authors discovered that currency depreciation had a positive and significant influence on Nigeria's trade balance from 1986 to 2018. However, Genemo (2017) asserted that currency depreciation would affect the trade in African countries negatively.

From a different point of view, Brun, Gambetta & Varela (2022) examined why exports respond to exchange rate depreciations slowly and why they act after exchange rate appreciations quickly for Pakistan's economy. They found that the sluggish reaction to depreciations stems from three different channels - information, supply constraints and pricing to the market.

In the extant literature, several studies about the currency depreciation-trade nexus give mixed results in Turkey. For example, Gül & Ekinci (2006), concluded that there is no causal relationship from the real exchange rate to imports and exports. Barışık & Demircioğlu (2006) argued that there is an existence of a weak nexus between the exchange rate regime and export-import. Ordu (2013) investigated the sensitivity of Turkish trade deficit to fluctuations in real exchange rates. The author revealed that trade deficit has a tendency to constantly grow despite longer devaluation periods. Thus, foreign exchange policy could not establish a positive trade balance. Barak & Naimoğlu (2018) used ARDL analysis to evaluate the international trade volume and exchange rate movements of the vulnerable five nations, including Turkey. The study discovered a positive and substantial association between foreign trade volume and exchange rate in both long and short run.

Among the newest studies, Sünbül (2021), for example, used monthly data from January 2013 to July 2020 to study the real effective dollar sales rate and Turkey's import and export connection with ARDL. The author determined a long run negative relationship between the exchange rate of the dependent variable and the imports of the independent variables. The study discovered a positive and substantial association between foreign trade volume and exchange rate in the long and short run. There is also a positive relationship with exports. Çatalbaş (2021) examined the long and short-term relationships between exports, imports, and the Turkish real exchange rate using quarterly data from January 1990 to March 2019. The vector error correction model (VECM) was used to confirm the long-term link between the series, while the Granger causality test was used to analyze the short-term relationship. At the 1% significance level, the Granger causality test indicated a two-way causation relationship between real exchange rate and export and a one-way causality association between import and export and import and real exchange rate. Furthermore, it was discovered that short-run deviations in the series were stabilized in the long run. Dinçer, Shingal & Tekin-Koru (2022) applied a gravity model using a firm-based database of Turkish companies to observe the exchange rate - trade relationship from 2003 to 2015. They found that the depreciation of the lira was related to an increase in the number of Turkish exports. However, this association can differ from sector to sector in Turkey. Finally, Kopuk & Mecik (2022), analyzed the effect of depreciation on Turkey's imports and exports after 2008 global crisis from the first quarter of 2008 to the last quarter of 2020. They applied Augmented Dickey-Fuller (ADF), Phillips Perron (PP) and Zivot-Andrews (ZA) for unit root tests and short-long term coefficient estimations; Vector Error Correction Model (VECM), Dynamic Least Squares Method (DOLS) and Fully Modified Ordinary Least Squares Method (FMOLS) methods. They revealed that real effective exchange rate decreased exports both in the short and long run. They also pointed out that there is a unidirectional causality from inflation to exports.

4. DATA AND METHODOLOGY

4.1 Data Set

This study section investigated the data sources, models, and econometrics techniques employed. The study relied on yearly time series data obtained from secondary sources. It involved annual data for Turkey on export rate (as a percentage of GDP), exchange rate, inflation rate, deposit interest rate, and import rate (as a percentage of GDP), which are all collected for the period spanning from 1990 to 2020. The information was obtained from the Turkish Central Bank

Bulletin and the World Bank. The logarithm of all series was taken in order to purify the series from small fluctuations and make them linear. Accordingly, LEXP denotes the average export rate, LDEPO represents the deposit interest rate, LIMP symbolizes the import rate, LEXC indicates the exchange rate and finally LINF denotes the inflation rate.

Table 1 summarizes the first descriptive statistics of our series. It can be observed that LEXP is 3.09 per cent with the standard deviation 0.21 per cent and maximum of 3.48 per cent. Besides, LDEPO, LIMP, LEXC and LINF have a mean value of 3.47 per cent, 3.22 per cent, -0.64 per cent, and 3.09 per cent respectively. LEXP, LDEPO, LIMP, and LINF have probability values greater than 0.05. This suggests that the variables are normally distributed. The distributions of LDEPO and LINF are somewhat right-skewed, whereas the distributions of other series are slightly left-skewed. LDEPO, LIMP, and LINF have kurtosis values of less than 3. This suggests that the distribution is platykurtic. LEXP and LEXC have kurtosis greater than 3. This suggests that the distribution is leptokurtic.

Table 1. Descriptive statistics of the data used

	LEXP	LDEPO	LIMP	LEXC	LINF
Mean	3.092030	3.473865	3.223078	-0.645797	3.096218
Median	3.135755	3.188788	3.262472	0.354873	2.719979
Maximum	3.4886282	4.474959	3.400831	1.948280	4.656053
Minimum	2.592639	2.592041	2.940695	-5.948405	1.832581
Std. Dev.	0.219035	0.686015	0.144500	2.222829	1.029809
Skewness	-0.870373	0.203207	-0.558553	-1.144493	0.239664
Kurtosis	3.618761	1.382927	1.975208	3.083327	1.292316
Jarque-Bera	4.408543	3.590959	2.968412	6.776604	4.063507
Probability	0.110331	0.166048	0.226682	0.033766	0.131105
Sum	95.85294	107.6898	99.91543	-20.01972	95.98277
Sum Sq. Dev.	1.439295	14.11850	0.626405	148.2291	31.81518
Observations	31	31	31	31	31

Source: Author's compilation

4.2 Methods

Many unit root tests are used in the literature to check for the stationarity of the series. Augmented Dickey Fuller ADF (Said & Fuller, 1984) test has been used commonly for this purpose.

Table 2. Unit Root Test

	Augmented-Dickey Fuller Unit Root Test		
Country	Variables	Level	1st Difference
Turkey	LEXP	1.094469	-5.031651*
	LDEPO	-0.652165	-5.449138*
	LIMP	-2.018493	-5.769450*
	LEXC	-2.987565*	
	LINF	-0.990364	-4.657942*

Note: * denotes that the series become stationary at 1 % level of significance
Source: Author's calculations

The model we use for the data will be an Autoregressive distributed lag ARDL model (Pesaran, Shin & Smith, 2001). This approach is considered superior to a similar one in the case of a small sample size (Ma, Wahab, Liu & Liu, 2018). ARDL model can be applied independently of the series' integration order since it does not set restrictions under the variables of interest (Pesaran & Pesaran, 1997). The formal ARDL model structure used in this study is as below:

$$\Delta Export_t = const + \delta_{Export} Export_{t-1} + \delta_{Deposit\ Interest\ Rate} Deposit\ Interest\ Rate_t +$$
$$\delta_{Inflation\ Rate} Inflation\ Rate_t + \delta_{Import} Import_{t-1} + \delta_{Exchange\ Rate} Exchange\ Rate_t +$$
$$\sum_{i=1}^{p} \alpha_{Export,i} \Delta Export_{t-i} + \sum_{i=1}^{p} \alpha_{Deposit\ Interest\ Rate,i} \Delta Deposit\ Interest\ Rate_{t-i} +$$
$$\sum_{i=1}^{p} \alpha_{Inflation\ Rate,i} \Delta Inflation\ Rate_{t-i} + \sum_{i=1}^{p} \alpha_{Import,i} \Delta Import_{t-i} +$$
$$\sum_{i=1}^{p} \alpha_{Exchange\ Rate,i} \Delta Exchange\ Rate_{t-i} + \theta ECT_{t-i} + \varepsilon_t,$$

where, δ_{Export}, $\delta_{Deposit\ Interest\ Rate}$, $\delta_{Inflation\ Rate}$, δ_{Import}, $\delta_{Exchange\ Rate}$ are the long-run coefficients; α_{Export}, $\alpha_{Deposit\ Interest\ Rate}$, $\alpha_{Inflation\ Rate}$, α_{Import}, $\alpha_{Exchange\ Rate}$ are the short-run coefficients, ECT is the error correction term, ε_t is the error term.

Critical values like Akaike, Schwarz, and Hannan-Quinn are used to determine the number of lags. The lag length providing the smallest critical value is determined as the lag length. If the model creates an auto-correlation problem, the second lag length that provides the smallest critical value is taken. If the autocorrelation problem still continues, this process is continued until this problem disappears (Karagol et al., 2007). In this study, the number of lags was determined as 4 according to the Akaike criterion. As a result of the LM test, an autocorrelation

problem was found in the model. To eliminate this problem, the appropriate lag length is taken as 3.

5. RESULTS AND DISCUSSIONS

The first technique to assess the long-run relationships between our series is cointegration – Bound test (Pesaran, Shin & Smith, 2001).

Using both statistics (Fisher statistic and T-Student statistic), we found that there is a long-term relationship between the series and therefore a cointegration between them. Since the cointegration relationship has been determined, ARDL model can be installed to determine the long and short run relationships. Table 3 presents the bounds test results.

Table 3. Bounds Test Results

Statistics	Critical values*		Conclusion
	Lower bound I(0)	Upper bound I(1)	
F-Statistics 5.887073	3.354	4.774	Cointegration
t-Statistics -4.051324	-2.86	-3.99	Cointegration

Note:*at 5% significance.

Source: Author's calculations.

The long-term coefficients calculated according to the estimation results of the ARDL (2, 3, 3, 3, 0) model are given in Table 4. According to the results, the coefficient of exchange rate (LEXC) has a positive and significant effect on exports at 1 percent level of significance. The inflation rate (LINF), at levels of 1 percent and 5 percent in the long run, has a negative impact on exports, indicating that it is insignificant, but shows significance at 10 percent. The coefficient of import rate (LIMP) depicts a negative and insignificant relationship with the exports in the long run. Lastly, the coefficient of deposit rate (LDEPO) has a positive but insignificant impact on exports at 1 per cent and 5 percent but shows significance at 10 percent.

Table 4 presents the result of the short-run dynamic in the model that shows the effect of inflation, exchange rate and import rate in promoting exports. Significant correlations were found between the short-term export rate and all other variables, in contrast to long-term coefficients. The direction of the relationship between exports and exchange rates is positive, with a coefficient

of 0.85. This coefficient can be interpreted to mean that 1 percent change in the exchange rate will increase exports as the percentage of GDP by 0.85 percent. This coefficient can be interpreted as 1 percent change in the exchange rate which will increase exports by 0.85 percent. Similarly, the direction of the relationship between exports and import is positive in the short run. In other words, 1 percent increase in imports as a percentage of GDP will increase exports by 1.21 percent. Additionally, the short run and long run directions of the connection between inflation and exports are both negative. One percent increase in inflation causes a decrease in exports of 0.25 percent. As expected, the error correction term (ECM-1) is negative and statistically significant. This means that deviations from the short run equilibrium will approach the long run equilibrium. The estimated value of this coefficient is -0.715. It shows that the speed of adjustment is high.

Table 4. ARDL (2, 3, 3, 3, 0) Model Results

Long-Run Coefficients				
Variables	Coefficient	Standard Dev.	t-Statistics	Prob.
LINF	-0.391990***	0.209811	-1.868302	0.0863
LIMP	-1.450767	0.947031	-1.531912	0.1515
LEXC	0.166923*	0.036149	4.617614	0.0006
LDEPO	0.296615***	0.154715	1.917162	0.0793
Short-Run Coefficients				
LEXP (-1)	0.825741*	0.156100	5.289805	0.0002
LINF	-0.253715*	0.055989	-4.531541	0.0007
LINF (-1)	0.106582**	0.038990	2.733567	0.0181
LINF (-2)	0.123354*	0.036778	3.354005	0.0057
LIMP	1.210113*	0.292337	4.139452	0.0014
LIMP (-1)	0.259459	0.245878	1.055233	0.3121
LIMP (-2)	0.742717**	0.253364	2.931421	0.0126
LEXC	0.850751*	0.085148	9.991453	0.0000
LEXC (-1)	-0.546191*	0.107961	-5.059169	0.0003
LEXC (-2)	0.178991***	0.089932	1.990291	0.0698
ECT (-1)	-0.715097*	0.114146	-6.264755	0.0000
	Number of obs.	R-squared	Adjusted R-squared	Log Likelihood
	31	0.927763	0.878101	54.08185

Source: Author's representation using E-Views 10

Note: *, **, *** 1 percent, 5 percent, and 10 percent denote significance at one percent, five percent, and ten percent levels.

A serial Breusch-Godfrey correlation LM test was used to determine whether there is autocorrelation among the residuals. Since the probability value is higher than 1 percent, we cannot reject the null hypothesis of no presence of autocorrelation. That means there is no autocorrelation problem in our model. In order to test for heteroskedasticity, the Breusch-Pagan-Godfrey test was performed. We observed that there is no heteroskedasticity in our model. The Jarque-Bera test was utilized to evaluate the normality distribution of the residuals. Normality was established at 1% and 5%. Similarly, the result displays the Ramsey Reset test for misspecification, which confirms that the model is accurately specified. All the test results are shown in Table 5.

Table 5. Diagnostic Test Results

Diagnostic Test Techniques	Statistics	Probabilities
Serial correlation (LM Test)	8.710378	0.0128
Heteroskedasticity (Breusch-Pagan-Godfrey Test)	18.64589	0.2302
Normality Test (Jarque-Bera)	3.656685	0.160680
Ramsey Reset Test	2.003494	0.1846

Source: Author's representation using E-Views 10

At last, to check for the stability of the model, the CUSUM squared test is used. As shown in Figure 1, our model deviates from the long-run equilibrium on and off to return inside the range. That means that the model is stable; it converges all the time to the long-run equilibrium.

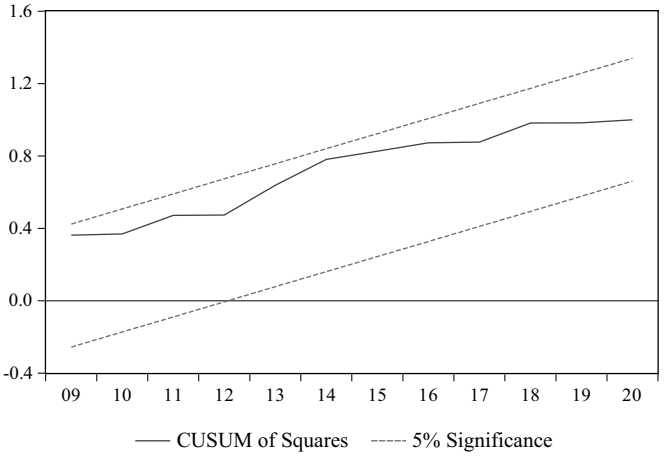

Figure 1. CUSUM of squares test results

Source: Author's representation using E-Views 10

6. CONCLUSIONS

The study is trying to determine the effect of the Turkish Lira's depreciation on exports in an empirical way using time series data from 1990 to 2020. The exchange, inflation, import and deposit interest rates were selected as independent variables to depict currency depreciation. ARDL bounds testing technique was employed for cointegration in the study.

The outcomes of the econometric analysis have shown that the exchange rate coefficient has a positive and significant impact on Turkey's exports in the long and short run. Changes in exchange rates are an essential determinant of Turkey's exports. Notably, parallel to the rapid increase in exchange rates since 2013, Turkey's share in world exports rose from 0.83 percent in 2013 to 1.02 percent in 2021. The balance between the exchange rate and export has always favored Turkey as an exporter. This result is in line with the study conducted by Sünbül (2011) that the exchange rate positively influences exports in Turkey.

The inflation rate has a negative and insignificant effect on exports in the long term, while its effects are negative and significant in the short term. In Turkey, the effect of inflation on exports happens in the form of eliminating the competitive exchange rate advantage provided by the rising exchange rate due to increased production costs, such as energy, raw materials, labor wages, etc.

Import rate shows a negative and insignificant impact in the long run, while it has a positive and significant effect on exports in the short run. Because Turkey's final goods output is typically reliant on imports, a boost in the exchange rate often floats trade openness in favor of imports. Importing raw materials and intermediate goods may boost Turkey's exports in the short run. But, when the exchange rate rises, imports will erode exports in the long run. Furthermore, since an increase in the exchange rate will increase the price of imported products in the market, inflation will also tend to increase.

The deposit interest rate has a positive but insignificant (at 1 percent and 5 percent level of significance) long-term impact on exports. This result differs from economic expectations because increasing interest rates may cause foreign trade activities and investments to decrease. Uslu (2018) found that the effect of an increase in the interest rate on exports is statistically insignificant. That is in line with the findings from the author for Turkey.

The target to be determined in terms of Turkey's exports should be to sell high-value-added, technology-intensive products to final consumers in dynamic markets with high purchasing power. In this respect, Turkey continues investing

in the electric automobile and defense industry and tries to produce new products in these sectors.

Exchange rate increases do not have an effect on exports alone. For this reason, exporters need a stable exchange rate and business environment, not ever-increasing exchange rates. In this context, we believe that import restrictions due to high exchange rates may hamper Turkey's export activities.

Conflict of interests

The author declares there is no conflict of interest.

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УТИЦАЈ ДЕПРЕЦИЈАЦИЈЕ ВАЛУТЕ НА ИЗВОЗ: ПРИСТУП АУТОРЕГРЕСИВНОГ ДИСТРИБУИРАНОГ ЗАОСТАЈАЊА ЗА ТУРСКУ ЛИРУ

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САЖЕТАК

Турска је доживјела многе економске кризе током посљедњих деценија 20. вијека и почетком 21. вијека, а међународне трговинске активности су се драстично промијениле пошто је турска валута „лира" озбиљно осцилирала. Турска лира је посљедњих година брзо депресирала у односу

на стране валуте, што је утицало на међународне трговинске активности Турске. Истраживање користи тестирање граница ауторегресивног дистрибуираног заостајања (АРДЛ) да би се истражио ефекат депресијације турске лире на турски извоз од 1990. до 2020. године. Налази сугеришу да је девизни курс повезан са извозом и на кратак и на дуги рок. Насупрот томе, стопа инфлације има негативан и безначајан дугорочни утицај на извоз, али негативан и значајан краткорочни ефекат. Даље, увоз има негативан и безначајан утицај на дужи рок, док извоз има позитиван и значајан ефекат на кратак рок. На дуги рок, пасивна каматна стопа је позитивна, али безначајна на нивоу значајности од 1 и 5 процената. Ови резултати сугеришу да би Турска требало да производи интермедијарну робу у очекивању високог девизног курса и да извози производе са високом додатном вриједношћу који захтијевају интензивну технологију како би се елиминисала зависност турског извоза од увоза.

Кључне ријечи: *депресијација валуте, курс, извоз, увоз, АРДЛ*

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THE IMPACT OF GREEN ECONOMY STANDARDS ON COMPETITIVE ADVANTAGE: THE STUDY OF ROMANIA

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ABSTRACT

The study aimed to reveal the impact of green economy practices in achieving competitive advantage in companies operating in Romania, according to the size of the companies. The study used the descriptive causal approach. As for the study population, it consisted of all employees in Romanian companies in the departments of quality assurance, quality control, research and development, and production. The questionnaire was used as a main tool for collecting data and information that was analyzed with a set of statistical means, via the Internet to collect data, followed by the analysis of correlations between specific variables. By applying the Pearson chi-square test, 355 questionnaires were distributed, and only 100 were retrieved. The results of the study have showed that there is an impact of green economy practices in achieving competitive advantage, as well as an impact of total quality management practices in achieving competitive advantage in the Romanian operating companies under study. There were no statistically significant differences in the averages of the impact of green economy practices on achieving the competitive advantage. There is a relationship between the use of green economy standards and the subsequent perception of their effectiveness.

1. INTRODUCTION

The Earth is warming and the climate is changing mainly due to human activities, such as burning fossil fuels, deforestation, changing natural land use, industrial processes and unsustainable agriculture, which emit gases, called greenhouse gases.

Recent reports indicate that in April 2022, carbon dioxide levels in Earth's atmosphere rose by more than 420 parts per million, which is the highest level ever recorded in human history.

The last time global carbon dioxide levels exceeded 400 ppm was around 4 million years ago when the world was around 3 degrees Celsius (5.4 degrees Fahrenheit) warmer and the sea level was much higher than it is today.

All these manifestations have made the countries of the world in urgent need to change the environment of the economy (brown or black) and to take the necessary measures to reduce the risks of crises and shocks increasingly rooted in the current traditional model followed in development which neglects the environmental perspective in economic development (Altenburg et al., 2016, Fankhauser & Jotzo, 2018).

The United Nations Environment Program carried the banner of change. Its initiative in 2008 was to move towards the green economy, which is a new model of economic development and represents a new engine to promote economic growth and development, create new employment opportunities, strengthen social equality and rely on renewable energies. Clean environment, which preserves the environment from pollution, preserves the right of future generations to development, improves the efficient use of economic resources, and provides a safe and carbon-free climate that ensures the well-being of humanity.

Countries around the world have started to turn to the so-called green economy as a new strategy to reduce the environmental risks associated with the economy, because the green economy works to achieve sustainable development.

The transition to a green economy and the criteria for using a green economy require the company to set goals and establish processes in order to achieve the result. Numerous studies confirm the preponderant role of the transition to a green economy through its financial, economic and social effects respectively (Dechezleprêtre & Sato, 2017).

Studies published over the past decade on the approaches taken to the transition to a green economy and the economic impact, have reported somewhat conflicting results. While arguments have been made that transitioning to a green economy is an inefficient tool and only a formal function, several surveys in Europe and America show that the transition to a green economy is still considered a critical method in the business sector. This fact is corroborated by surveys conducted in Poland, North America and Canada.

The unanswered question is why some companies have managed to deal with the inherent weaknesses of energy saving, while others have abandoned the energy system. Interestingly, an examination of the ways in which these well-established practices are modified to increase their effectiveness in the business environment and the benefits for decision-making is missing from the literature. Regardless

of alternative methods, some authors have attempted to suggest the transition to green economy as an inevitable consequence of development in various fields, and the enhancement of various positive effects in various economic aspects, including the financial and competitive aspect of companies (Schmitz & Schrader, 2015). This study summarizes recommendations for improving financial impact and competitive advantage, while examining their application in the real world. This is primarily to review the transition to a green economy through regular comparison of targets and actual performance to discern any discrepancies in it as implemented by businesses in the business environment, that is, Romanian business. Research has also been conducted to determine the factors that contribute to the adoption of these improved methods and to measure the perception of their success after their implementation.

According to the United Nations Environment Program, the green economy "is that economy that results in an improvement in human well-being and social equality while significantly reducing environmental risks and ecological scarcity of resources. We can look at the green economy in its simplest form, and it is that economy that it reduces carbon emissions, increases the efficiency of resource use, and accommodates all age groups."

The green economy "is one of the new models of fast-growing economic development, which is based mainly on good knowledge of the environment, and whose most important objective is to address the mutual relationship between human economies and the natural ecosystem." (Barry, 2007).

The incentives for the transition to the green economy are represented in the interest in rural development with the aim of alleviating poverty in rural areas, as the green economy contributes to alleviating poverty through the wise management of natural resources and ecosystems, and this will achieve the benefits of natural capital we can deliver to the poor, taking care of water and not polluting it and striving to rationalize it, as improving water efficiency and using it can greatly reduce its consumption. Improving methods of obtaining water will contribute to providing groundwater inside wells and also preserving surface water, supporting the transport sector. Collectively, reaching a 25% reduction in energy price subsidies in the Arab region will save more than 100 billion dollars within three years, and this amount can be transferred to greening energy and moving to it in the field of transportation. By greening 50% of the transportation sector in the Arab countries as a result high energy efficiency and the use of public transportation and hybrid cars save approximately $23 billion annually, and spending $100 billion in greening 20% of existing buildings over the next ten years, is expected to provide more than 4 million job opportunities (Khanfar, 2014).

Addressing the problem of solid waste and trying to recycle it (the production of phosphoric acid and fertilizers, the production of concentrated minerals, the concentrated use of fertilizers in agriculture, industrial and traditional tanneries, the pharmaceutical industry and the manufacturing industry) is important as more than 50% of this waste is thrown into the water, and the emissions coming out of it lead to water pollution, if it is not disposed of well by burying it in a sanitary landfill or recycled (Ismail, 2014).

It will lead to a clean environment and reduce toxic emissions. Work to increase sustainable investments in the field of energy and measures increasing energy efficiency, as the transition to a green economy will lead to a significant reduction in greenhouse gas emissions. In the investment scheme in which 2% of GDP is invested in key sectors of the green economy, more than half of that investment is allocated to increase the efficiency of using energy and expand the production and the use of renewable energy resources and the result is a 36% reduction in the intensity of energy use at the global level (van Zanten, 2010).

Thus, green political economy provides coherent analyzes and offers resistance to the new wave of economic globalization (Paterson et al., 2000; Figuière & Metereau, 2021). It brings together issues of threat from the global biotechnology industry, the dominant capitalist development model, the deepening of North-South inequalities, the concentration of poverty and misery, ecological restructuring and modernization, the character scientific expertise and technological imperatives in the development of public policies. It is a politics of speaking truth to power, giving voice to the powerless, future generations and the non-human world (Lavrinenko et al., 2019).

The theme of green economy was mainly addressed during the Rio+20 Conference held in June 2012 to celebrate the 20th anniversary of the Rio Summit. Governments have agreed to define the green economy as an important tool for sustainable development and an inclusive economy that drives economic growth, employment and poverty eradication while maintaining the healthy functioning of Earth's ecosystems.

Green economy, according to Margolis and Foster (1991), can be primarily understood as the term denoting any economic theory that views human economic activity as an integral part of ecosystems (Matthews and Boltz, 2012). Green economics is a complete economic theory to pursue economic growth based on sustainability with environment, energy, health and public welfare, promoting good governance, regulation, technology and education.

Economy of Sustainability in a four-book review. The first study is On the Road to a Green World Focusing on the Political Economy of the Global Environment

by Clapp (2014). The second study, Trade, Growth and Environment, focuses on theory and evidence by Copeland and Taylor (2004). Study III "Nations Natural Advantage," Business Opportunities, Innovation, and Governance in the Twenty-First Century by Hargroves and Smith (2005). The fourth study is "Globalization and the Environment", with a focus on the greening of the global political economy by Kutting (2004).

All of these studies, despite their diversity, agree that the pursuit of sustainability requires an understanding of the shape of the dynamics in the global political economy. In Perry's (2007) study "A Green Political Economy Model: From Environmental Modernization to Economic Security," he states that the weakest aspect in understanding sustainable development has been the economic dimension. It is suggested that ecological modernization is the dominant concept of sustainable development within the UK. The judgment is based on key sustainable development policy documents and an awareness of the strategic opportunities of policy discourse. In particular, it is suggested that the discourse of economic security should be used to present policy-relevant pathways to outline a green political economy.

From the point of view of system theory by Owen (2005). Systematic requirements, hierarchical characteristics, and gradual evolution from simple to complex are systematically identified (Sultan & Mason, 2010). Small and medium enterprises have limitations in controlling strategic resources, and the level of market research and formal planning is still relatively low. These conditions encourage the importance of investment to develop strategic resources in line with the implementation of strategies to create competitive advantage and results in improving business performance by gaining competitive advantage from strategic resources that are created or obtained, maintained and developed by the company as a basis for choosing the competitive strategy, for maneuvering to face competition in the market.

The Food and Agriculture Organization (FAO) defines sustainable development (adopted in 1989), as "the management and protection of the natural resource base and the direction of technical and institutional change in such a way as to ensure the fulfillment and continued satisfaction of human needs for present and future generations." That sustainable development (in agriculture, forests, and fisheries resources) protects land, water, plant and animal genetic resources, does not harm the environment, is technically appropriate, economically appropriate, and socially acceptable (Stanley, 2022).

The term sustainable development was introduced in 1974 in the wake of the Stockholm Conference, which was followed by the Rio Summit for the first

time on the environment and sustainable development, which declared in 1992 the characteristics of sustainable development, summarized in, development in which the time dimension is the basis (Barney & Hesterly, 2010), as it is necessarily long-term development, which depends on the assessment of present potential, and is planned for the longest future period of time during which variables can be predicted.

It is a development that puts meeting the needs of individuals in the first place, as its priorities are meeting the basic and necessary needs of food, clothing, education, health services, and everything related to improving the physical and social quality of human life (Gassmann & Keupp, 2007). It is a development that takes into account the preservation of the biosphere in the natural environment, regardless of its basic elements and compounds such as air and water, for example, or the vital processes in the biosphere, such as gases, for example. Therefore, it is a development that requires not depleting the natural resource base in the biosphere, and also requires preserving the minor cyclical processes. And the largest in the biosphere, through which resources and elements are transported and purified to ensure the continuation of life (Pavic, Koh, Simpson & Padmore, 2007).

The concept of competitive advantage occupies an important place in both the areas of strategic management and business economics, and this concept emerged clearly in the early eighties of the last century when Porter introduced the concept of competitive strategies, "and pointed out that the most important and determining factor for the success of business organizations is their competitive position in the industry in which they work." There are many tools and indicators that are used in empirical studies to assess competitiveness. These indicators differ according to the level of analysis, whether it is at the state level or at the sector level.

Or at the enterprise level. At the macroeconomic level, the most important measures and indicators that are often used in testing and evaluating competitiveness are considered the trade balance as the most used indicators. As for the sector level, the focus is usually on three types of indicators: relative production costs, relative productivity and exchanges. As for the enterprise, among the most important indicators are profitability, manufacturing cost, total factor productivity, and market share.

Accordingly, the notion of competitive advantage is an edge over competitors gained by delivering greater customer value, through lower prices or by providing more benefits that correspond with higher pricing. Some of the indicators used to measure competitive advantage is unique, rare, not easily imitated, not easily

replaced, and competitively priced. Competitive advantage is a collection of strategies to determine the benefits of a company from the competition between other companies. The competitive strategy includes low cost and differentiation. Furthermore, the combination of both strategies is called the focus. Basically every company competing in an industry environment has a desire to be more superior to its competitors. Competitive advantage is the relative advantage of an organization that may exceed its competitors. Competitive advantage is basically growing from a value or benefit that the company could create for the customer.

If the company is able to create excellence through one of the three generic strategies proposed by Porter, it will obtain competitive advantage. He states that competitive advantages are the kinds of strategies to help the company maintain its viability (de Jong & van Dijk, 2015).

The opinion was supported by which is it stated that in a competitive market, the company's ability to produce the performance, especially the financial performance, is highly dependent on the degree of competitive advantage.

2. MATERIALS AND METHODS

The aim of the study is to examine how traditional budgeting processes are modified to suit firms in the Romanian business environment and to identify the factors that determine the choices that are made.

2.1. Sample data

The target group consists of companies operating in the Republic of Romania that have adopted green economy methods in their work.

In order to obtain a wide range of respondents, quantitative research was carried out in the form of a web-based questionnaire distributed via e-mail. Contact information for the companies' senior employees was obtained from the Albertina database, the target group which includes executives and employees in positions such as chief executive officer, chief financial officer, heads of finance and control, and project managers. These individuals are ideal because of their experience in creating and working with budgets.

Data was collected from January to June 2018. In all, 1,360 businesses were contacted, 100 of whom completed the survey. The data of the respondents is in Table 1.

Table 1. Summary Statistics

Variable	Fre	Perc
Manufacturing	40	40%
Construction	25	25%
Energy supply	20	20%
Engineering	10	10%
Other	5	5%

Source: Author's calculation

2.2. Determination of hypotheses

After reviewing the literature, the author identified the research questions below as a basis for hypothesis formulation:

- Does the perception of moving to a green economy affect the competitive effects of companies?
- Can the use of green economy standards affect the quality of competitiveness within companies?
- Do companies adopt green economy standards and the dimensions of competitive advantage?

The survey conducted here primarily measured the factors that influence whether a company has used green economy standards. First, if companies adopt the dimensions of competitive advantage, and measure the correlation between the use of criteria for the transition to the green economy and competitive advantage, and then measure the impact of the use of green economy criteria in each of the dimensions of competitive advantage adopted in the study, the first hypothesis below examined the effect of visualizing the effect of using The green economy dimension is the quality of intra-firm competitiveness, measured by the self-evaluation of beneficiaries on a scale of 1 to 5 (from "very disagree" to "highly agreed") in decisions regarding the implementation of the use of green economy standards

H1: The use of green economy standards affects the quality of competition within firms.

As for the second aspect, it examined the impact of the perception of the impact of the use of green economy on the research and development dimension within companies, measured by the self-evaluation of beneficiaries on a scale from 1 to 5 (from "very disagree" to "highly agreed") in decisions related to the implementation of the use of economic standards.

H2: The use of green economy standards affects research and development within companies.

The third hypothesis was developed to examine the extent to which the perception of the impact of green economy use affects the quality of market share within companies, measured by the self-evaluation of beneficiaries on a scale of 1 to 5 (from "very disagree" to "highly agreed") in decisions about implementing the use of economic standards.

H3: The use of green economy standards affects market share within companies.

The fourth hypothesis was developed to examine the impact of perception of the impact of green economy use on financial profits within firms, measured by the self-evaluation of beneficiaries on a scale of 1 to 5 ("very disagree" to "highly agree") in decisions about implementing the use of green economy criteria.

H4: The use of green economy criteria affects financial profits within companies

The defined hypotheses were all tested by Pearson's chi-square test of independence, whereby comparison of observed frequencies with expected ones was made assuming normal distribution. It follows that the variables were tested to see if they were dependent on each other. While the zero hypothesis (H0) assumed the independence of both variables, the alternative hypothesis (H1) was confirmed if the variables were dependent on each other. The level of significance was set at $\alpha = 0.05$. After collating the answers to the survey in Google forms, the database containing these responses was transferred to spss v25. The calculation occurred in spss v25.

3. RESULTS

Since the study investigated the potential enhancement of traditional budgeting processes, it was necessary to know which respondents were using a traditional budget. To avoid various interpretations of traditional budgeting, the term was defined in the questionnaire as a method of planning on an annual basis that uses financial variables.

According to the aforementioned definition and most respondents mentioned in Table 2, the company is working to increase investments within it in order to green the economy. This means mobilizing new and additional resources besides reallocating capital came with the largest average of 4.25. Then I took the phrase work to encourage green private investment within the company through stable and predictable incentives, policies, and market frameworks average 4.11, so that the company takes full advantage of its comparative advantage in trading in

environmentally sustainable goods and services with a mean of 4.07, while the statement that product designs and plans are developed within our company to focus on the environment took the lowest average of 3.57, and accordingly the Romanian companies under study are working to use green economy standards.

Table 2. Factor Analysis for The use of green economy standards

Statements	Arithmetic mean	Standard deviation
Policies to increase energy efficiency are the easiest and cheapest way to achieve energy security	3.83	0.84
Technologies such as efficient LEDs offer significant energy reduction potential	4.07	0.74
The green economy contributes to the provision of sustainable electricity to Romania	3.88	0.85
Access to renewable energy systems within the green economy is affordable	3.79	0.66
Increasing investments within the company in order to green the economy means mobilizing new and additional resources as well as reallocating capital	4.25	0.87
Promote green private investment within the company through stable and predictable incentives, policies, and market frameworks.	4.11	0.81
Government regulations encourage the policy framework for the transition to a green economy.	4.02	0.90
Increasing investments in green economy resources within the company	4.01	0.80
The company has the right to make full use of its environmentally sustainable comparative advantage	4.07	0.91
Operations are reduced and environmental requirements are met within our company	3.91	1.07
Product designs and plans are developed within our company to focus on the environment.	3.57	0.96
In our company, green products are classified and stored in different places than other products.	3.84	1.00
Energy and resource savings are achieved in our company, and emissions reduction, control, reuse and recycling are implemented.	3.93	0.97
In our company, training is provided to our employees on environmental protection.	3.83	0.84

Source: Author's calculation

The respondents' answers to the phrases of competitive advantage ranged between (3.67-4.30(where the phrase "the institution uses electronic methods in administrative work effectively" took a greater average of 4.30, then came the phrase that the institution develops its intellectual capital through professional development and employee motivation with an average of 4.05, then the phrase "striving" the company aims to expand the market geographically in order to achieve a large market share with an average of 3.91, then the statement that

there has been an increase in the market share in the last three years with an average of 3.82, and this confirms that Greek companies have a competitive advantage inside and outside Romania, and all dimensions of the competitive advantage are applied to create competition inside and outside Europe.

Table 3. Factor Analysis for Competitive advantage

Variables	Statements	Means	Std. dev.
The quality	Designing production processes to achieve the best level of products	3.85	0.99
	The outputs of the institution are commensurate with the national standards	3.86	0.90
	The organization develops its intellectual capital through professional development and employee motivation	4.05	0.92
	The organization contributes to the continuous training of employees	3.92	0.87
Research and development	The organization uses electronic methods in administrative work effectively	4.30	0.88
	The institution responds to societal changes in a way that it contributes to the development of the labor market	4.04	0.89
	The company's ability to face competition and achieve competitive advantage	3.96	0.92
	Improving productivity by achieving efficiency and effectiveness in performance	3.75	0.89
Market share	The company innovates new ways to increase the percentage of sales.	3.76	0.94
	The company seeks to expand the market geographically in order to achieve a large market share	3.91	1.00
	The company seeks to carry out marketing campaigns to increase its profits.	3.67	0.97
	The company seeks to devise promotional methods at low cost.	3.80	1.01
Financial profits	Annual sales increase in the last three years	3.78	1.00
	Increased market share in the last three years	3.82	0.99
	Net profit increase in the last three years	3.79	1.01
	Outperform competitors in the last three years	3.81	0.85

Source: Author's calculation

3.1. Testing the hypotheses

At first, the existence of a correlational relationship between the independent variable green economy and the dimensions of competitive advantage was examined (through the Pearson correlation coefficient test), and the following is an explanation of this:

Table 4. Results of the Correlation Pearson test between green economy and competitive advantage

Financial profits	Market share	Research and development	The quality		
.763*	.830*	.832*	.753*	correlation coefficient	Green economy
.000	.000	.000	.000	sig	
1000	1000	1000	1000	The number	

Source: Author's calculation

It is clear from Table (4) that there is a positive relationship between each of the green economy, and each of the dimensions of competitive advantage, and the significance value of all the mentioned areas reached 00.0, which is less than 05.0. It is also clear that this relationship is strong and positive, because the values of the correlation coefficient ranged from what between (.753, .832) and this indicates the possibility of examining the existence of an effect between these variable.

Based on the results of the previous procedures that showed the suitability of the data to the assumptions of the regression analysis, the following are the results of the hypothesis examination:

The first hypothesis: There is an impact of the green economy on the quality of the economic institutions located in Romania to test this hypothesis, a Regression Multiple Analysis test was conducted, and Table 5 shows the results of this test:

Table 5. The results of the Analysis Regression Multiple between the use of green economy and quality in economic institutions

T. signification level	Calculated T value	Unstandardized	Variables
000.	2.513	.868	(Constant)
.001	3.765	.402	green economy
		.762	R
		580.	R-square
		576.	Adjusted R-square
		184.654	Calculated F
		000.	F . Test significance

Source: Author's calculation

It is evident from Table 5 that there is a statistically significant effect of the use of green economy on quality in economic institutions in Romania, as the calculated F value amounted to 184.654, which is a function at the significance level of 000. The coefficient of determination reached 580, which indicates that

the use of the green economy explains what is valued at 58% of the quality in the economic institutions in Romania from the point of view of its employees. The green economy has 3.765 with a significance level of .001, and this value is less than 0.05, which indicates that there is an effect of each use of the green economy on quality.

The second hypothesis: There is an impact of the green economy in research and development among the economic institutions located in Romania.

To test this hypothesis, a Regression Multiple Analysis test was conducted, and Table 6 shows the results of this test:

Table 6. Results of Analysis Regression Multiple between the use of green economy and research and development in economic institutions

T . signification level	Calculated T value	Unstandardized	Variables
000.	3.430	.899	(Constant)
000.	2.861	.530	green economy
		.636	R
		404.	R-square
		400.	Adjusted R-square
		176.435	Calculated F
		000.	F . Test significance

Source: Author's calculation

It is evident from Table 6 that there is a statistically significant effect of using green economy in research and development in economic institutions in Romania, as the calculated F value amounted to 176.435, which is a function at the significance level 000. The coefficient of determination was 0.404, which indicates that the use of the green economy explains its value of 40.4% of research and development in economic institutions in Romania from the point of view of its employees, and the table shows that there is a significant effect of ≤ 0.05 for each use of the green economy in research and development in institutions, as the calculated T value for each use of the green economy is 2.861, with a significance level of 000., and this value is less than 0.05, which indicates that there is an effect for each use of the green economy in research and development.

The third hypothesis: There is an impact of the green economy on the market share of the economic institutions located in Romania.

To test this hypothesis, a Regression Multiple Analysis test was conducted, and Table 7 shows the results of this test:

Table 7. Results of Analysis Regression Multiple between the use of green economy and market share in economic institutions

T . signification level	Calculated T value	Unstandardized	Variables
000.	2.881	.759	(Constant)
004 .	3.578	.305	green economy
		.622	R
		386.	R-square
		380.	Adjusted R-square
		284.421	Calculated F
		000.	F . Test significance

Source: Author's calculation

It is evident from Table 7 that there is a statistically significant effect of the use of the green economy on the market share in economic institutions in Romania, as the calculated F value amounted to 284.421, which is a function at the significance level of 000. The coefficient of determination was 380. This indicates that the use of the green economy explains its value of 38 % of the market share in economic institutions in Romania from the point of view of its employees, and the table shows that there is an effect of ≤ 0.05 for each use of the green economy on the market share in the institutions, as the calculated T value for each use of the green economy was 3.578 with a significance level of 004. And this value is less than 0.05, which indicates that there is an effect of each use of the green economy on the market share.

Fourth hypothesis: There is an effect of the green economy on the financial profits of the economic institutions located in Romania.

To test this hypothesis, a Regression Multiple Analysis test was conducted, and Table 8 shows the results of this test:

Table 8. Results of Analysis Regression Multiple between the use of green economy and financial profits in economic institutions

T . signification level	Calculated T value	Unstandardized	Variables
000.	2.198	.755	(Constant)
.029	3.740	.375	green economy
		.804	R
		646.	R-square
		640.	Adjusted R-square
		265.176	Calculated F
		000.	F . Test significance

Source: Author's calculation

It is clear from Table 8 that there is a statistically significant effect of using the green economy in financial profits in economic institutions in Romania, as the calculated F value reached 265.176, which is a function at the significance level 000. The coefficient of determination reached 646 which indicates that the use of the green economy explains its value of 64.6 % of the financial profits in the economic institutions in Romania from the point of view of their employees, and the table shows that there is an effect of ≤ 0.05 for each use of the green economy in the financial profits in the institutions, where the value of T calculated for each use of the green economy was 3.740 with a significance level of .029, and this value is smaller than 0.05 indicating that there is an effect of each use of the green economy on financial profits.

4. DISCUSSIONS

The results of the study showed that the decisions made regarding the criteria of competitive advantage in Romanian companies are affected by objective factors in the external environment, and by structural factors within the company. There is also an effect and harmonization between the use of green economy and the competitive advantage of Romanian companies.

According to the results of the applied study, the acceptance of the H1 hypothesis "the distinctive role played by the green economy for business owners" is confirmed. Not in the sense of a method that underpins effective quality, but rather as a means that provides executives with insight into designing production processes that achieve the best level of product. The institution's outputs are commensurate with the national standards, through which and through professional development and employee motivation, the institution develops its intellectual capital, and the H1 results fully meet the expectations of the study.

Based on the results of the H2 hypothesis, the effect that the use of the green economy plays in research and development has been confirmed. The use of green economy standards has an impact on the organization's effective use of electronic methods in administrative work, which responds to the societal changes that contribute to the development of the labor market, the company's ability to face competition, achieve competitive advantage, and improve productivity by achieving efficiency and effectiveness in performance.

The use of green economy standards also contributes to the company innovating new ways to increase sales, as the company works to expand the market geographically in order to achieve a large market share, and to carry out

marketing campaigns to increase its profits, and innovate promotional methods with low cost, and this is proven by the predictions of the hypothesis. H3

Based on the results of the H4 hypothesis, the use of green economy criteria affects financial profits, by increasing annual sales, increasing market share, increasing net profits, and outperforming competitors in the last three years.

Therefore, these results can be interpreted as confirmation of the effectiveness of the use of criteria for the transition to a green economy in the dimensions of competitive advantage. As a result, it can be assumed that the financial implications of the transition to a green economy become more evident through the simultaneous use of the dimensions of competitive advantage.

5. CONCLUSIONS

Romania is a country rich in renewable energy sources, and solar energy and wind energy are among the most important sources that may help Romania get out of many economic and social crises. The projects of installing power stations and connecting them to the roofs of buildings are among the most influential projects on the economic and social dimension, and there is a huge virgin market. Solar and wind energy projects in Egypt are capable of growth for years to come. But what is important is the availability of legislation and laws motivating this. What is required from the current tariff is to increase the price of energy produced from rooftop projects, provided that there are the same soft financing mechanisms announced by the government. Only then will we have a very good opportunity to use solar energy and wind energy to change the lives of citizens for the better.

Therefore, as recommendations:

Many results can be reached to benefit from the experience of Romania in the following points:

A. Renewable energy is of great importance in protecting the environment, as it is a clean, non-polluting energy, and its use is expanding with this target, and thus reducing the use of traditional energy sources (known for their bad impact on the environment in view of the pollution and carbon emissions they create), especially due to the cost of generating electricity from sources. Renewable energy is declining, and from it one of the sustainable development goals can be achieved, which is to maintain a clean environment and achieve economic development.

B. Romania is witnessing a great boom in the field of renewable energy. This is due to the entry into force of the Renewable Energy Sources Law (EEG) on

April 1, 2000. The most important characteristic of this law is that it is only for renewable energy. The law aims to address climate change and reduce dependence on fossil fuels. It contains monetary incentives for those who provide renewable energy sources and interest in scientific research in the field of renewable energy.

C. In light of the complexity of the environmental problem in Romania, the Romanian government seeks to solve these problems by resorting to renewable energy, especially as we mentioned earlier that Romania is witnessing a great boom in the field of renewable energy, including reducing the use of traditional energy and reducing harmful gas emissions of carbon dioxide, nitrogen and sulphur.

Conflict of interests

The author declares there is no conflict of interest.

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УТИЦАЈ СТАНДАРДА ЗЕЛЕНЕ ЕКОНОМИЈЕ НА КОНКУРЕНТСКУ ПРЕДНОСТ: СЛУЧАЈ РУМУНИЈЕ

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САЖЕТАК

Студија је имала за циљ да истражи утицај праксе зелене економије у постизању конкурентске предности компанија које послују у Румунији, према величини компанија. Студија је користила дескриптивни каузални приступ. Што се тиче студијске популације, чинили су је сви запослени у

румунским компанијама у одјељењима за обезбјеђење квалитета, контролу квалитета, истраживање и развој и производњу. Упитник је коришћен као главни алат за прикупљање података и информација које су анализиране скупом статистичких средстава, при чему су подаци прикупљани путем интернета, након чега је рађена анализа корелација између појединих варијабли. Примјеном Пирсоновог хи-квадрат теста, подијељено је 355 упитника, а попуњено је само 100. Резултати студије су показали да постоји утицај праксе зелене економије на постизање конкурентске предности, као и утицај праксе управљања укупним квалитетом на постизање конкурентске предности у румунским оперативним компанијама које су анализиране. Није било статистички значајних разлика у просјецима утицаја пракси зелене економије на постизање конкурентске предности. Утврђена је веза између употребе стандарда зелене економије и накнадне перцепције њихове ефикасности.

Кључне ријечи: *зелена економија, конкурентност, конкурентна предност, румунске компаније.*

SUSTAINABLE DEVELOPMENT THROUGH THE PRISM OF TOURISM AND CONSUMERS IN THE TOURISM MARKET - CASE STUDY OF VLASINA LAKE

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ABSTRACT

The concept of sustainable development represents an inexhaustible topic of research, which gains additional importance in the conditions of the current energy crisis. In this sense, the attention of the scientific and professional public is directed towards greater use of renewable energy sources in tourism. The aim of the work is to research the attitudes of consumers towards the use of renewable energy sources and the application of the principles of sustainable tourism on Vlasina Lake. The first part of the paper contains a review of the professional literature, while the second part of the paper presents the results of research on consumer attitudes towards the application of renewable energy sources on Vlasina Lake. Statistical analysis was performed using the SPSS software package. The importance of the work is reflected in the potential implications for the development of the strategy for the sustainable development of tourism in Southeast Serbia.

1. INTRODUCTION

Sustainable development is a concept that has been in the focus of interest of academics for the last decade. It is based on the necessity of establishing a balance between meeting the growing needs of the population, using limited natural resources and improving the quality of life.

Meeting current needs without compromising the ability of future generations to meet their needs requires accepting sustainable development as a dominant philosophy respected by every individual in the global economy (Dražić, 2020).

The application of the concept of sustainable development requires fundamental changes in business behavior, management methods in all sectors of economic activity, as well as the way natural resources are managed and used. Due to the necessity of changes in business behavior at the global level, in 1992, at the UN Conference on the Environment and Sustainable Development in Rio de Janeiro, a binding agreement was adopted in which the principles of sustainable development were defined and Agenda 21 was adopted as a development action plan for member states.

Twenty years later, at the World Summit in Rio (Rio+20) there was a discussion over the application of the principles of sustainable development in practice, with a focus on the institutional framework of sustainable development, on the one hand, and the green economy in the context of sustainable development and poverty reduction, on the other. At the RIO+20 conference, held in 2012, 17 sustainable development goals 2015 - 2030 were adopted, as a series of individual goals aimed at achieving the basic goal of sustainable development.

The Agenda for Sustainable Development until 2030 with 17 sustainable development goals provides the basis for realizing the vision of sustainable development, as well as short-term and long-term goals in all three categories of sustainable development (environmental, economic and social). Within the framework of the implementation of the Sustainable Development Agenda until 2030, continuous monitoring and measurement of progress in achieving the goals of sustainable development is one of the key factors (Statistical Office of the Republic of Serbia, 2020).

The Republic of Serbia was actively involved in the definition of sustainable development goals, as a member of the Open Working Group on Sustainable Development Goals and the Intergovernmental Committee of Experts on Sustainable Development Financing. It also showed its commitment to the achievement of the goals set in the 2030 Agenda and, accordingly, submitted the Report on progress in achieving the goals of sustainable development by 2030 in the Republic of Serbia in December 2020 (Statistical Office of the Republic of Serbia, 2020).

The report contains progress assessments based on data from the Republic Institute of Statistics for 83 indicators within 17 sustainable development goals, according to Eurostat's methodology in the European Union. Given that in Serbia the stated goals are not quantitatively expressed, progress is measured on the basis of data for a certain indicator in the initial year, and then the movement of progress in a positive or negative direction is measured.

Thus, the report shows the results for goal 12 - Ensure sustainable patterns of consumption and production, within the Resource Productivity indicator for the period 2015 - 2018. Moderate progress was made in achieving the goals of sustainable development, while significant progress was made for the period 2010 - 2018. When it comes to the indicator Domestic consumption of materials for the period 2015 - 2018, a significant deviation from the achievement of the goals of sustainable development was achieved, while for the period 2010 - 2018, a moderate deviation was achieved.

Results for goal 15 - Protect, restore and promote the sustainable use of terrestrial ecosystems, sustainably manage forests, fight desertification, stop and reverse the process of land degradation and stop the loss of biodiversity. Based on the indicator Area under forests as a share of the total land area results, show for both considered periods 2015 - 2020 and 2000 - 2020 moderate progress in achieving the goals of sustainable development, while for the indicator Official development assistance for the preservation and sustainable use of biodiversity and ecosystems, the results show significant progress in achieving the goals of sustainable development for the period 2015 - 2018 and 2002 - 2018 (Statistical Office of the Republic of Serbia, 2020).

Stefanović and Azemović (2012) believe that the application of the concept of sustainable development in practice implies maximum emphasis on the positive characteristics of the goals of sustainable development, while negative repercussions need to be minimized.

The difference between the earlier understanding of tourism and the concept of sustainable tourism is that earlier the importance of the economic component and the realization of economic profit was emphasized, while in the model of sustainable tourism, the importance of environmental protection is primarily emphasized.

The application of the concept of sustainability is very important for all economic branches. Within tourism, sustainability implies the satisfaction of tourists with the necessity of a balance between the ecological, socio-cultural and economic components, which achieves the optimal development of tourism with the rational use of resources, the possibility for future generations of tourists to satisfy their needs, respect for tradition, socio-cultural heritage, fostering intercultural understanding, as well as achieving long-term economic growth and profitability (Dražić, 2020).

Sustainable tourism implies a responsible attitude towards the environment and cultural heritage, along with increasing employment and the possibility of

making a profit. The World Tourism Organization and the UN Environment Program define sustainable tourism as achieving a balance between meeting the needs of tourists and preserving tourist destinations with the possibility of future generations of tourists meeting tourist needs, which indicates the need for the concept of sustainable development to be a key factor in the management of tourist activity, concludes Jovičić (2000).

In 1996, Agenda 21 for the Travel and Tourism Industry was adopted by the World Council for Tourism and Trade including 12 goals for the development of sustainable tourism, which are primarily aimed at preserving and improving the environment and rational use of natural resources in tourism. The satisfaction of tourists is the goal that needs to be fulfilled along with the protection of cultural heritage.

The application of the concept of sustainable tourism requires an integral approach to traditional management strategies, determining the destination with a tourism development plan. Concretely, it is necessary to adequately plan traffic infrastructure, land exploitation, economic development, marketing while adapting to the capacities of the tourist destination and the offer of new attractive contents, so as not to cause environmental pollution and the destruction of the destination's cultural heritage (Stefanović & Azemović, 2012).

Modern business conditions impose the need for energy growth of around 1.5% per year with a forecast of acceleration up to 3 times by 2055 (Dražić, 2020). As a significant aspect of tourism activity, Luyando, Jaramillo, Zabaloy & Guzowski (2020) state energy consumption for products, services and visitor experiences, which leads to the conclusion that the growth of tourism activity leads to increased energy consumption.

The current, global energy crisis has additionally focused on the interest in renewable energy sources. Also, the fact that non-renewable sources are not inexhaustible, as well as the fact that the use of fossil fuels and the emission of carbon dioxide with the greenhouse effect affect environmental pollution are factors that direct the population towards the use of renewable sources.

The benefits of using renewable energy sources are huge, but due to economic limitations regarding the cost of purchasing equipment, the share of energy from renewable sources is relatively low both globally and nationally.

Čekrlija (2012) believes that natural resources (forests, agricultural lands, fossil fuels and minerals, rivers, lakes and the sea) represent the natural wealth of individual countries as well as the whole world and that it is necessary to create

a quality strategy for the planned management of renewable resources after analyzing the collected data.

Luyando et al. (2020) state that the use of renewable energy sources is a significant factor for increasing the eco-efficiency of tourist destinations and suggest that energy efficiency plays a key role and provides added value in the sustainable development of tourism, with the conclusion that Mexico's tourism sector has improved its position in the world by investing in a more efficient and sustainable energy management model that provides competitive advantages over other industries.

Mehmood et al. (2022) explore the impact of economic growth, tourism and renewable energy in Pakistan, India, Nepal and Sri Lanka. The research results confirmed that the use of renewable energy sources improves air quality in Pakistan, India, Sri Lanka and Nepal. Regarding tourism, the obtained results show that tourism improves air quality in Pakistan and Nepal, while in Sri Lanka and India it has a negative effect, i.e. it increases the emission of carbon dioxide. The authors' conclusion is that greater use of renewable energy sources is needed in the tourism sector, in order to reduce possible negative implications.

Vasić and Radović (2021) point out that there is a difference between sustainable and ecotourism and state that the concept of sustainable tourism needs to be applied in all segments of tourism, and that ecotourism is a special segment of tourism that is based on the application of sustainable development.

A similar position is stated by Bradić-Martinović and Miletić (2018), who believe that sustainable tourism is aimed at minimizing the negative impact of tourist travel on the environment and the local community, while ecotourism emphasizes the preservation of nature and the education of tourists about the destination.

The mutual connection between tourism and sustainable development is strong, given that tourism has both positive and negative impacts on the concept of sustainable development. The positive impact is reflected in the development of the economic area, the growth of employment, the encouragement of investments, the support of local communities, the definition of the economic value of natural and cultural resources, the development of intercultural understanding and tolerance. On the other hand, the degradation of the ecosystem, the disruption of the flora and fauna as well as the ecological and social characteristics of the tourist area, the pressure on the traditions of the local community, the irrational consumption of natural resources, and greater environmental pollution represent the negative impacts of tourism on sustainable development (Dražić, 2020).

Milošević, Ilić and Popović (2021), and according to the source (Globalecotourism1, 2016) cite as negative consequences of ecotourism: the pressure of people on local infrastructure, pollution, noise, waste, endangerment of water, profit that is realized does not bring enough benefits to the local community , population disturbance, competition for natural resources.

The preservation of the environment is negatively affected by the increase in the number of inhabitants, the use of fossil fuels, deforestation, and the development of tourism, so in this context, the development of ecotourism, the development of ecological awareness of the population and education about the importance of protecting natural resources and biological diversity are important, as Bradić-Martinović and Miletić (2018) point out.

Riojas-Díaz, Jaramillo-Romero, Calderón-Vargas and Asmat-Campos (2022) conclude in their research that tourism is the main factor of economic activity in La Florida, employing more than 32% of the population. Also, it was determined that there is a positive influence between sustainable tourism and local development in the sense that the development of tourism contributes to improving the quality of life of the local population, increasing employment and economic development.

Observed at the level of total economic activity, in many countries around the world tourism plays an important role and affects economic development, income and employment (Luyando et al. 2020) and in that context tourism should be viewed in such a way that the offer and demand in tourism is influenced by a number of external factors: political, economic, technological, socio-cultural, legislative and environmental factors (Sharpley, 2009).

The World Travel & Tourism Council presents reports on the economic impact of travel and tourism on economic development and employment for 185 countries and 25 regions in the world. Before the pandemic, the travel and tourism sector accounted for 1 in 4 new jobs in the world. The latest annual survey of the World travel & tourism council shows (World Travel & Tourism Council, 2023):

- After a 50.4% decline in GDP in 2020 (a loss of almost 4.9 trillion US$), the contribution of travel and tourism contributed to a 21.7% increase in GDP ($1 trillion) in 2021.
- In 2019, the travel and tourism sector contributed with 10.3% to global GDP; after a decrease of 5.3% in 2020 due to permanent restrictions on mobility, the share was increased to 6.1% in 2021.

- Compared to 333 million in 2019, in 2020 with a decrease of 18.6%, 62 million jobs were lost and the number of employees reached 271 million. The year 2021 brings an increase of 6.7%, or 18.2 million jobs.
- After a decrease of 47.4% in 2020, the consumption of domestic visitors increased by 31.4% in 2021,
- After a 69.7% decrease in 2020, spending by international visitors increased by 3.8% in 2021.

When it comes to the Republic of Serbia, the research shows the following data:

- The share of travel and tourism in GDP was 5.9% in 2019, while in the following years the share was reduced primarily due to movement restrictions, in 2020 to 3.7% and in 2021 to 3.6 %.
- In 2019, the number of employees in tourism was 6.2% of the total number of employees, in 2020 the number of employees was 5.5%, while the year 2021 brought a slight increase in the absolute number of employees, but also a decrease in percent to 5.4%.
- The consumption of domestic tourists in 2019 was 31%, and shows an increase to 34% in 2021.
- The consumption of international tourists had a decreasing trend, so the consumption in 2021 amounted to 66%, while in 2019 it amounted to 69%.

Milošević, Ilić and Popović (2021) state that ecotourism had a slight growth tendency, but after the COVID-19 pandemic, it recorded a decline. However, they believe that the benefits of ecotourism will be recognized and that in this context, ecotourism will quickly recover with the finding of solutions by the local community in the context of encouraging the preservation and protection of nature, cultural diversity and heritage destinations.

2. PREVIOUS RESEARCH - LITERATURE REVIEW

In their research, Milošević, Ilić and Popović (2021) analyze the attitudes of public opinion on ecotourism and conclude that a change in attitudes, continuous education and development of the ecological awareness of the population is necessary in order to enable the application of the principles of ecotourism. The results of the research show that 57% of respondents are informed about ecological tourism, while 50% of respondents believe that nature conservation is the most significant effect of ecotourism. It should be pointed out that after informing respondents about ecotourism on websites, the change in respondents' attitudes was significant, and even 97% of respondents declared that they had a

positive opinion and attitude about the application of ecotourism, as Milošević, Ilić and Popović (2021) point out. The result obtained in this way points to the conclusion that additional information and constant education of the population is necessary.

When it comes to the environment, residents of La Florida show a positive awareness of protecting their natural environment (Riojas-Díaz et al., 2022). The authors also state that professional marketing support is needed for greater use of renewable energy sources, given that there is sufficient local potential in La Florida for the use of solar and wind energy using solar panels and wind generators. As an example, they cite the creation of sustainable accommodation, the satisfaction of energy needs by using renewable energy sources that affect the reduction of energy supply costs, which would increase the likelihood of tourists' stay longer than one day, which ultimately affects the realization of higher income for residents (Riojas-Díaz et al., 2022).

Grubor, Milicević and Djokić (2019) in their research on the analysis of tourists' behavior and their intention to visit green rural hotels highlight the importance of green rural tourism for sustainable development. Using the dynamic approach of the theory of planned behavior, they analyzed the influence of attitudes, subjective norms, perceived behavioral control on the intention to visit a green rural hotel, in the context of three different phases of behavior in which the respondents are (pre-decision phase, pre-action phase and action phase). The obtained research results show that there are significant positive effects of attitudes, subjective norms and perceived behavioral control observed at the level of the whole model, while observed by phases, attitudes have a positive effect only in the second phase, subjective norms in the first phase and perceived behavioral control in the third phase.

Luyando et al. (2020) confirm that there is a connection between the hotel category and the level of energy efficiency, i.e. that four- and five-star hotels are the most motivated to implement energy efficiency measures and use renewable energy sources based on their ability to invest in energy efficiency projects with the aim of reducing business costs, in relation to incentives from local self-governments or the state. The reason for this behavior, the authors explain, is the existence of an adequate level of profit for investments, on the one hand, and the possibility of promotion as a socially responsible company, on the other, in order to attract tourists from developed countries with developed environmental awareness and greater purchasing power.

The aim of the research by Djokic et al. (2023) is to analyze the student's intention to use e-bikes in the context of their attitudes, subjective norms,

perceived behavioral control and financial incentives. The results show that financial incentives have the strongest influence on the intention to use e-bikes on students. Also, attitudes and subjective norms have a positive influence on the intention to use e-bikes. The obtained results can be a guideline for the future activities of the state in the form of financial incentives for greater use of e-bikes, as well as the significant influence that the media has on shaping the behavior of students.

Bradić-Martinović and Miletić (2018) state that ecotourism is a specific part of the concept of sustainable development and a chance for the development of tourism in the Republic of Serbia, full of natural resources needed to be nurtured and preserved. However, the authors state that in the Republic of Serbia, ecotourism is still at a very low level of representation. That is why it is necessary to educate and develop the ecological awareness of the population about the benefits of sustainable development and ecotourism, as well as invest in sustainable forms of tourism, in order to increase the demand for ecotourism in the Republic of Serbia.

3. RESEARCH RESULTS

Vlasina, viewed in a wider geographical context, means a vast mountain plateau, the river Vlasina and Vlasina Lake. It is located in the southeastern part of the Republic of Serbia. The lake is located at an altitude of 1,210 meters and as such represents the potential for the development of various types of tourism. The characteristic of this mountain plateau, together with the lake and the river, is a diversified and rich ecosystem.

Dealing with the problems of the tourism industry, Stefanović and Azemović (2012) state that the level of environmental preservation directly affects the possibilities of development, primarily of recreational tourism, and in this context, the key potential advantage of the Vlasin Plateau is ecologically based forms of tourism, which should be promoted with the aim of achieving long-term destination development.

The research is based on the application of the Theory of Planned Behavior with the aim of analyzing the views of respondents on the use of renewable energy sources on Vlasina Lake. The same was conducted using an online questionnaire on a sample of 127 respondents from the territory of southeastern Serbia.

Descriptive analysis shows that of the total number of respondents, 59.8% (76) are female respondents, while 40.2% (51) are male respondents. When looking at the age of the respondents, the average age of the respondents is 42.5 years

(standard deviation 9.716), where the youngest respondent was 18 years old, and the oldest was 69 years old. The largest number of respondents (50.4%) were 40-50 years old. In terms of education, the largest number of respondents, 77.2%, have higher or high education, 6.3% are students and 16.5% are respondents who have completed secondary school (standard deviation 0.758).

The questionnaire used in the research was devided into two parts. The first part of the questionnaire refers to the respondent's gender, age and education as a sociodemographic characteristic of the respondent. Questions related to the research of attitudes towards the use of renewable energy sources at Vlasina Lake were covered in the second part of the questionnaire. At the same time, attitudes were measured based on five statements:

Table 1. Answers of the respondents

Variables and Assertions	Average	Standard deviation
I think that using renewable sources of energy is good.	3.58	1.300
I think that the use of renewable energy sources is positive.	4.24	1.106
I believe that the use of renewable energy sources is desirable.	4.27	1.123
I think that using renewable energy sources is easy.	3.43	1.124
I believe that using renewable energy sources is wise.	4.28	1.067

Source: Authors' calculation

By answering the questions, the respondents expressed their views using a five-point Likert scale (from "totally disagree" to "totally agree"). Respondents mostly agreed with the statement that using renewable energy sources is wise, desirable and positive (average score 4.2), and the least with the statement that using renewable energy sources is easy (average score closest to 3.4).

The t test of independent samples was used to compare respondents of different sexes, while Pearson's correlation was used to determine the existence of a correlation of age and education with the respondents' attitudes.

Chart 1 shows the answer to the question of whether respondents have ever visited Vlasina Lake, and indicates that the largest number of respondents have visited the specified destination more than once, while Chart 2 shows whether respondents believe that renewable energy sources are used at Vlasina Lake.

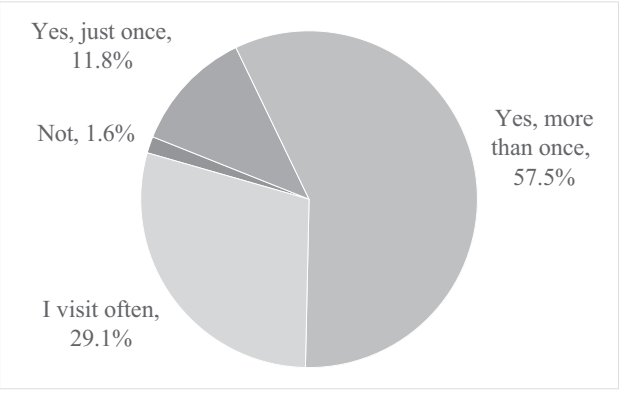

Chart 1. Have you ever visited Vlasina Lake?
Source: Authors' calculation

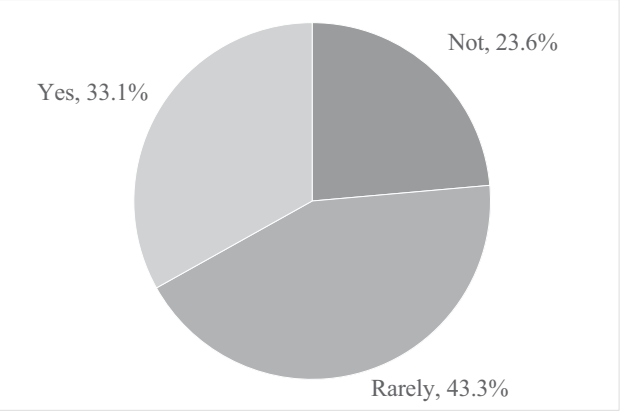

Chart 2. Do you think that renewable energy sources are used at Vlasina Lake?
Source: Authors' calculation

When asked which renewable energy source is most often used on Lake Vlasina, respondents gave preference to hydropower plants (67.7%), given that the surroundings of Vlasina are rich in rivers and water potential, as well as that a couple of mini hydropower plants have been built in the last couple of years. The second place is taken by solar energy (21.3%), the third by pellets (6.3%) and the last one by wind energy (4.7%).

When we consider gender, 48 women believe that hydropower plants are the most frequently used source of energy compared to 38 men. When it comes to solar energy, 16 women gave a positive answer compared to 11 men (Chart 3.)

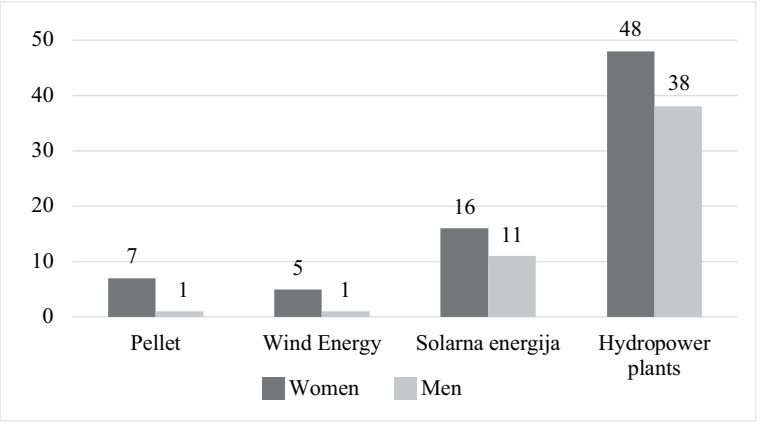

Chart 3. Which renewable energy source is used most at VlasinaLake?
Source: Authors' calculation

When it comes to the application of energy efficiency principles in Vlasina accommodation units, 44.1% believe that they are not applied, 39.4% that they are rarely applied, and only 16.5% gave a positive answer. For the application of the principles of sustainable tourism in Vlasina, in relation to the application of the principles of energy efficiency, a greater number of respondents believe that they are applied, 29.1%, that they are rarely applied, 34.6%, and 36.2% that they are not applied. Graph 4 shows the respondents' responses based on the sex of the respondents, which indicates that a greater number of female respondents gave a positive response compared to men to both questions.

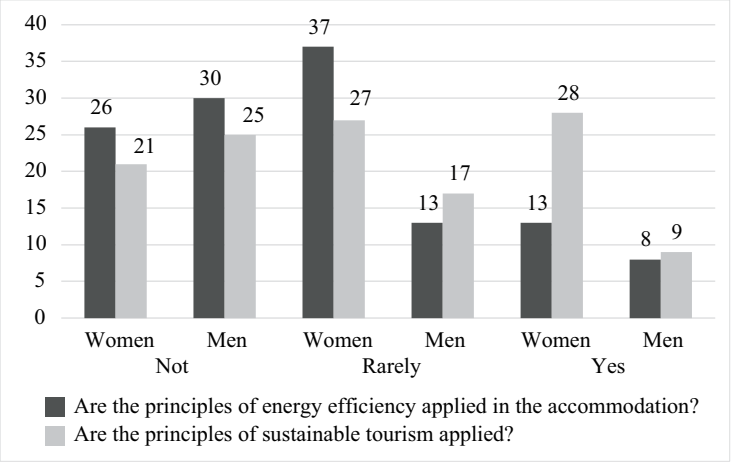

Chart 4. Are the principles of energy efficiency and sustainable tourism applied?
Source: Authors' calculation

When asked which form of ecotourism would be the best choice for promoting Vlasina Lake, half of the respondents believe that it would be a recreational vacation (summer and winter), and sports-recreational tourism is in the second place (Chart 5).

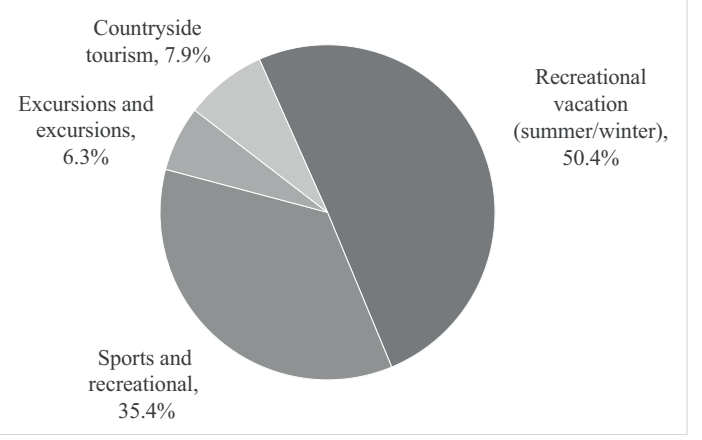

Chart 5. Which form of ecotourism would be the best choice for promoting Vlasina Lake?
Source: Authors' calculation

Results of the t test: $t(125) = -1.267$; $p = 0.208 > 0.05$ show that men and women do not statistically significantly differ in their attitudes towards the use of renewable energy sources at Vlasina Lake.

Pearson's correlation results: $r = -0.083$; $p = 0.351 > 0.05$ show that there is no correlation between the age of the respondents and attitudes towards the use of renewable energy sources at Vlasina Lake.

Pearson's correlation results: $r = 0.177$; $p = 0.047 > 0.05$ show that there is a positive and statistically significant correlation between the respondents' education and the respondents' attitudes towards the use of renewable energy sources on Vlasina Lake.

4. DISCUSSIONS

Theoretical considerations in the paper indicate the importance of applying the concept of sustainability and greater use of renewable energy sources in tourism. The aim of the work is to analyze the attitudes of consumers towards the use of

renewable energy sources and the application of the principles of sustainable tourism on Vlasina Lake.

Identifying the consumer's perception according to the variables investigated in the paper gives the possibility of comparison with the obtained results of previous research. The research results provide insight into consumer perceptions of renewable energy sources and show that there is awareness and positive attitudes about the advantages and importance of using renewable energy sources (the use of renewable energy sources is wise, desirable and positive), in accordance with the research of Grubor, Milićević and Djokić (2019) that there are significant positive effects of attitudes on the intention of tourists to visit green rural hotels, as well as in accordance with the results obtained by Djokic et al. (2023) that attitudes have a positive influence on the intention of students to use an e-bike.

Also, the data obtained from the analysis of consumer attitudes show that consumers are aware that it is not easy to start using renewable energy sources, which is somewhat clear considering the standard of living of consumers in the Republic of Serbia, and partly in accordance with the statements of Luyando et al. (2020) that there is a connection between the category of the hotel, the level of energy efficiency of the hotel and the attraction of environmentally conscious tourists with greater purchasing power.

Respondents' answers about the application of the principles of energy efficiency and sustainable tourism in Vlasina indicate that a greater percentage of respondents believe that they are not applied or rarely applied, which is not in line with the results of the research by Luyando et al. (2020) who point out that the use of renewable energy sources is a significant factor for increasing the eco-efficiency of tourist destinations. They state that energy efficiency is a dominant factor in creating additional value in the sustainable development of tourism.

In the context of socio-demographic characteristics, the results point to the conclusion that respondents with a higher level of education have more positive attitudes towards the use of renewable energy sources in Vlasina and, on that basis, can represent the target group for developing a marketing strategy.

Also, the results of the empirical research indicate the identification of recommendations for the adoption of the principles of sustainable tourism and a higher level of the use of renewable energy sources.

Namely, despite the existence of positive attitudes of respondents about the use of renewable energy sources, it is necessary to improve marketing activities in terms of increasing information and educating consumers about the benefits of using renewable energy sources, as well as consistent positioning of the concept

of sustainable development and ecotourism in the minds of consumers, in accordance with Bradić-Martinović and Miletić, (2018) and Milošević, Ilić and Popović (2021).

The scientific contribution of the paper, in addition to indicating the importance of using renewable energy sources in tourism, is also reflected in recommendations for directing marketing activities in the direction of creating strategies for improving the quality of the environment, human health and efficient use of natural resources.

5. CONCLUSIONS

Sustainable development, renewable energy sources, energy efficiency, ecotourism represent concepts that, at the moment when the energy crisis has entered the world stage, are gaining more and more importance every day. Previous research shows that the principles of sustainable development have begun to be applied in the Republic of Serbia, but they are still not at a satisfactory level. When it comes to the development of sustainable tourism and ecotourism, it is also at a low level, but with a tendency to develop.

The results of the research show that there are positive attitudes of respondents towards the use of renewable energy sources in the function of developing sustainable tourism in the Vlasina area.

However, planned and continuous information and education of the population about the benefits of sustainable development and sustainable tourism is necessary.

Considering the low percentage of positive answers to the question of whether the principles of energy efficiency are applied in the accommodation facilities of Vlasina Lake, the results of the research indicate the need for incentives from the political and economic authorities of the area for the application of energy efficiency. This type of incentives, primarily in the hotel context, would also have a secondary effect. It is about the promotion of socially responsible companies, which would attract a larger number of tourists with a developed environmental awareness. This is already an established practice of a developed tourist destination, and the ultimate goal would be to introduce the principle of energy efficiency by the owners of households that provide rental services.

In the context of the issue of choosing the best form of ecotourism, given that the majority of respondents opted for recreational vacations and sports-recreational tourism, the local development and tourism strategy can be based on financial

support for the use of e-bikes. Due to the natural and health characteristics of the property's surface, which have a positive impact on people's health, in addition to the above, it is necessary to direct financial incentives towards energy-efficient housing capacities.

Future research may include a larger number of respondents, as well as respondents from different parts of the Republic of Serbia.

Conflict of interests

The authors declare there is no conflict of interest.

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ОДРЖИВИ РАЗВОЈ КРОЗ ПРИЗМУ ТУРИЗМА И ПОТРОШАЧА НА ТУРИСТИКОМ ТРЖИШТУ – СТУДИЈА СЛУЧАЈА ВЛАСИНСКОГ ЈЕЗЕРА

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САЖЕТАК

Концепт одрживог развоја представља неисцрпну тему истраживања, која додатно добија на значају у условима тренутне енергетске кризе. У том смислу, пажња научно-стручне јавности је усмјерена ка већем коришћењу обновљивих извора енергије у туристичкој дјелатности. Циљ рада јесте истраживање ставова потрошача према коришћењу обновљивих извора енергије и примјена принципа одрживог туризма на Власинском језеру. Власинско језеро дио је ширег географског појма – Власинска планинска висораван. Ова географска област налази се на југоистоку Србије и територијално припада Пчињском округу. Први дио рада садржи преглед кредибилне литературе. У обзир су узета актуелна истраживања ове врсте како у свијету, тако и у Србији. Одрживи развој све више добија на значају и међу носиоцима политичке и економске власти, а туризам је препознат као потенцијално водећи сектор у промоцији одрживог развоја. То је разлог

зашто се све више теоретичара интересује за ову истраживачку област. Други дио рада је емпиријске природе. Овде су приказани резултати истраживања ставова потрошача према примјени обновљивих извора енергије на Власинском језеру. Истраживање је обухватило 127 потрошача са територије југоисточне Србије. Резултати до којих су аутори дошли огледају се у истовјетности мишљења оба пола по основу коришћења обновљиве енергије на територији Власинског језера. Оно што је веома битно и што ће у будућности дати добру основу за развој одрживог туризма јесте позитивна и статистички значајна корелација у погледу образовања и ставова потрошача (испитаника). Иако су екскурзије и излети, међу анкетираним испитаницима, најмање заступљени облик еко-туризма, истраживање наводи на закључак да ће у будућности овај вид туризма имати перспективу. Ово се изводи из чињенице о високој корелацији образовања и ставова испитаника. Статистичка анализа је спроведена помоћу софтверског пакета SPSS (The Statistical Package for the Social Sciences). Значај рада се огледа у потенцијалним импликацијама за развој стратегије одрживог развоја туризма југоисточне Србије и туристичке дестинације која обједињује Власинску област, а у чијем епицентру се налази Власинско језеро. Аутори ће настојати да популаризују питање одрживог развоја кроз туристичку и научну дјелатност и проширење интересних група на представљену тему на територији цијеле Србије.

Кључне речи*: одрживи развј, туризам, обновљиви извори енергије, ставови потрошача, Власинско језеро.*

FUNCTIONAL CORRELATION BETWEEN BANK ASSETS AND INSURED DEPOSITS IN BOSNIA AND HERZEGOVINA – THE PERSPECTIVE OF THE DEPOSIT INSURANCE FUND

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ABSTRACT

The projection of insured deposits level in banks is of the key importance for the financial planning of the Deposit Insurance Fund as an integral part of the deposit insurance system. On the one hand, in a situation when banks fail, Deposit Insurance Fund are used for payouts of insured deposits in those banks or for financing processes of resolution such banks, which represents a real outflow of the Fund. On the other hand, the main regular inflows into the Deposit Insurance Fund are realized from insurance premiums which, as a rule, are calculated on the basis of insured deposits in all banks. The research problem posed in this paper is how to predict changes in the level of insured deposits in banks, that is, how this level in banks changes in relation to the total assets of the banking sector. The research covered the period from 2009 to 2021. The level of insured deposits in banks was set as the dependent variable and the level of bank assets was set as the independent variable. The research was conducted on the banks operating in Bosnia and Herzegovina. The research confirmed the significant conditionality of the growth of insured deposits with the growth of the bank assets, and also opened up some new directions for further research in terms of the influence of other elements on the financial planning of the Deposit Insurance Fund and the presence of moral hazard in the banking sector.

1. INTRODUCTION

The importance of deposit insurance system and deposit insurance fund, as its crucial part, is especially evident in the current environment in which many unpredictable events and risks appear and in which financial crises are much

more frequent than in previous decades. Therefore, proper planning of the Deposit Insurance Fund is very important for the efficient functioning of the deposit insurance system.

In the financial planning of the Deposit Insurance Fund, projections of inflows and outflows of the Fund are very important. The most significant regular inflows are realized from insurance premiums that banks pay as a certain fee for deposit insurance and the most significant outflows of funds are through payouts to depositors in the event of liquidation/bankruptcy of banks or through the financing of bank resolution processes in those countries where such possibility exists.

In the context of the above, planning changes in the level of insured deposits in banks is important for two reasons. The first reason is that the strengthening of the Deposit Insurance Fund is mostly done from insurance premiums which, as a rule, are charged on the basis of total insured deposits in banks, and the second reason is that the level of insured deposits in banks represents the potential exposure of the Deposit Insurance Fund, i.e. in a situation when banks fail, the Fund should have enough available funds to fully protect all insured deposits in banks.

Given that banks use insured deposits as their source of financing, it was researched how the level of insured deposits in the banks operating in Bosnia and Herzegovina changed in relation to the change of the level of total bank assets over a period of 11 years (2009 - 2021). The goal was to determine the dependence of changes in the level of the insured deposits in relation to changes in the total assets of the banks operating in Bosnia and Herzegovina, i.e. in the Republic of Srpska and Federation of Bosnia and Herzegovina[1].

The results of the research could be useful to the deposit insurance system in the process of financial planning of the Deposit Insurance Fund.

Many studies have shown the importance of monitoring the level of insured deposits in banks in the context of determining the optimal amount of the Deposit Insurance Fund.

1 Bosnia and Herzegovina is a country consisting of two entities, the Republic of Srpska and the Federation of Bosnia and Herzegovina. Given that bank supervision and bank resolution processes are carried out by two institutions in Bosnia and Herzegovina - the Banking Agency of the Republic of Srpska for banks with headquarters in the Republic of Srpska and the Banking Agency of the Federation of Bosnia and Herzegovina for banks with headquarters in the Federation of Bosnia and Herzegovina, and that there are two entity banking laws, in this paper we observed both the entire banking sector in Bosnia and Herzegovina, as well as the separate banking sectors at the entity level.

The amount of the Deposit Insurance Fund at the end of a certain period of time is affected by insured deposits on two grounds. Firstly, in the case of payouts of insured deposits during the observed period, there is an outflow from the Fund, and secondly, the inflow into the Fund based on the charged premium is directly related to the level of insured deposits in banks, which, as a rule, is the basis for calculating the insurance premium.

The equation used for "dynamic" planning of the Deposit Insurance Fund, which takes into account changes in the level of insured bank deposits, can be represented as (International Association of Deposit Insurers, 2011, p. 14):

$$B_t = B_{t-1} - D_t + I_t + P_t + R_t$$

Where

B_t – denotes Deposit Insurance Fund at the end of period t,

D_t – denotes the total payout to depositors over period t,

I_t – denotes the investment income of the Deposit Insurance Fund over period t,

P_t – denotes insurance premiums received over period t,

R_t – denotes the recoveries received over period t.

Data on deposits and bank liabilities should be available from quarterly bank financial statements that banks file with their regulators. Estimates of insured deposits are often reported by banks as well, sometimes directly to the deposit insurer and other times to the central bank. The accuracy of self-reported insured deposits varies with the complexity of deposit insurance coverage rules, with more complex rules yielding worse estimates. The percentage of deposits that are insured will vary with bank type within the country, and insurance exposures depend heavily on the deposit insurance thresholds relative to average depositor wealth levels as well as wealth distributions (O'Keefe & Ufier, 2017, p. 28).

The impact of the growth of deposits onto the Deposit Insurance System's funds and its pay out capacity are as follows – the payout capacity is always larger at lower covered deposits' annual growth rate. Authorities should take into account the growth of deposits' impact when deciding on an annual premium level, especially if the country experienced a significant growth of deposits (Ognjenović, 2017, p. 123)

Empirical research conducted in order to assess the relationship between the Deposit Insurance Fund and total deposits and loans showed that the volume of total deposits and total loans and advances were negatively and statistically

significant to the Deposit Insurance Fund in the long run (Ebiaghan & Jeroh, 2020).

Research on changes in the level of insured deposits is also important for planning the target amount of the deposit insurance fund.2 In the literature, two approaches can be found in determining the target amount of the deposit insurance fund, namely: the Loss Distribution Approach and the Credit Portfolio Approach (O'Keefe & Ufier, 2017, p. 5). It is also possible to use the so-called discretionary approach. The discretionary approach refers to the situation when the target fund size is not determined according to specific methodology. Instead, arbitrary decision and judgments are made when establishing the target fund size (Ognjenović, 2017, p. 160). Regardless of which method was used in the planning process of the Deposit Insurance Fund, the key information is the level of insured deposits in banks, i.e. what the potential liability of the Deposit Insurance Fund is in the event that the bank encounters problems in its operations.

In order to determine the optimal level of the Deposit Insurance Fund, if the credit portfolio approach is applied, in addition to the probability of default, the loss rate per default, the overall exposure at default is a key factor. Expected Losses in state of world t = PDt x LGDt x EADt (O'Keefe & Ufier, 2017, p. 12).

In the research of the methodological approach for the development of the Target Deposit Insurance Fund Model, it is determined the importance of reporting regarding the level of insured deposits. Research regarding changes in insured deposits in an earlier period determines how the movement of the level of insured deposits will be predicted in the developed model. The percentage of deposits that are insured tends to depend heavily upon bank type (O'Keefe & Ufier, 2016, p. 20).

For the purposes of assessing the adequacy of the Deposit Insurance Fund using the credit risk model, the relationship between gross domestic product and inflation, interest rate changes and deposit growth was researched (Doss, 2017).

Research conducted by the International Association of Deposit Insurers showed that it is necessary to continuously review the target amount of the deposit insurance fund, taking into account the factors that influence its determination, which constantly change. One of the factors is the structure and characteristics of

2 The target amount of Deposit Insurance Fund is the desired (target, optimal) level of the "coverage ratio", expressed as the ratio of the total required amount of Deposit Insurance Fund and the total exposures of Deposit Insurance Fund to the member banks of deposit insurance program - total insured deposits in banks. Deposit insurance coverage ratio is a measure for the Deposit Insurance System's 'compensation power' or its 'payout capacity'. It is, somewhat, similar to the concept of bank's capital adequacy ratio (CAR) (Ognjenović, 2017, p. 109).

the financial system, an integral part of which are insured deposits (International Association of Deposit Insurers, 2018, p. 12).

2. MATERIALS AND METHODS

In this paper, regression and correlation analysis was applied. The relationship between bank assets and insured deposits was determined using a simple linear regression analysis. Bank assets represent an independent variable, whereas insured deposits in banks are a dependent variable and they are observed in the total amount in the banks operating in Bosnia and Herzegovina, as well as at the level of the banking sector of the Republic of Srpska and the banking sector of the Federation of Bosnia and Herzegovina. The functional connection between bank assets and insured deposits in banks was analyzed and it is shown as:

$$Y = f(def, X)$$

The simple linear regression model can be written as:

$$Y_i = \beta_0 + \beta_1 x_i + \varepsilon_i \quad i = 1,2,\ldots,N$$

Where:

- Y_i: means dependent variable, in this analysis, insured deposits in banks;
- x_i: means independent variable, in this analysis, bank assets;
- β_0 i β_1 are unknown constants or regression parameters;
- ε_i is a stochastic member or a disorder, or an accidental error and
- N means the size of the base set.

The estimates of the parameters in the regression equation are obtained on the basis of the least squares method and it is shown as:

$$b_1 = \frac{n\sum xy - \sum x \sum y}{n\sum x^2 - \left(\sum x\right)^2}$$

$$b_0 = \overline{y} - b_1 \overline{x}$$

The parameter b0 shows the expected value of the dependent variable Y, if the independent variable X has the value of zero, while the parameter b1 shows the average change of the dependent variable with a unit increase of the independent variable.

For the needs of the analysis, the econometric program EViews was used. The obtained coefficient of determination shows that the applied model is representative and that there is a strong connection between the observed variables, as well as that the applied model is good at forecasting trends.

3. RESULTS

The following table shows the results of the regression analysis of bank assets and bank insured deposits at the level of the entire banking sector of Bosnia and Herzegovina.

Table 1. The influence of bank assets on the level of insured deposits in the banking sector in Bosnia and Herzegovina [3]

Dependent Variable: ID
Method: Least Squares
Date: 02/16/23 Time: 11:04
Sample: 2009Q4 2021Q4
Included observations: 49

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3428777.	644695.9	-5.318441	0.0000
ASSETS	0.428631	0.024955	17.17639	0.0000
R-squared	0.862585	Mean dependent var		7449269.
Adjusted R-squared	0.859661	S.D. dependent var		2253648.
S.E. of regression	844258.7	Akaike info criterion		30.17027
Sum squared resid	3.35E+13	Schwarz criterion		30.24748
Log likelihood	-737.1715	Hannan-Quinn criter.		30.19956
F-statistic	295.0284	Durbin-Watson stat		0.082625
Prob(F-statistic)	0.000000			

Source: Deposit Insurance Agency of Bosnia and Herzegovina (n.d.), Reports on the situation in the banking sector of the Republic of Srpska (2022) and Reports on the situation in the banking sector of the Federation of Bosnia and Herzegovina (2022)

Regression analysis showed that the coefficient of determination (r2) is 0.86, i.e. 86% of changes in insured deposits are explained by changes in the level of bank assets. Therefore, the growth of insured deposits in banks is significantly conditioned by the growth of bank assets. The coefficient for the independent variable (bank assets) which is 0.43 showed that an increase/decrease in the amount of bank assets by one observed unit leads to an increase/decrease in the amount of insured deposits in banks by 0.43 units.

3 Data from Appendix 1

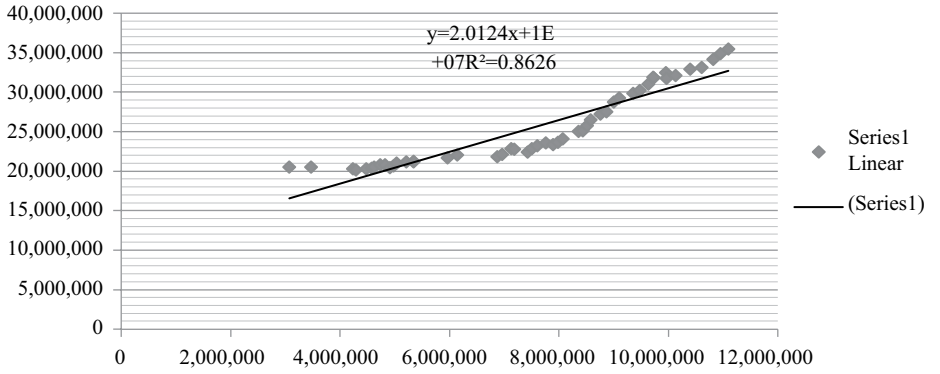

Chart 1. Regression equation of bank assets and insured deposits of the banking sector in Bosnia and Herzegovina

Source: Author's calculation

Bearing in mind that banks in Bosnia and Herzegovina operate in accordance with two entity banking laws, a separate research was carried out for the banking sector of the Republic of Srpska and the banking sector of the Federation of Bosnia and Herzegovina.

Table 2 shows the results of the regression analysis of bank assets and insured deposits at the banking sector of the Republic of Srpska and Table 3 shows the results of the regression analysis of bank assets and insured deposits at the banking sector of the Federation of Bosnia and Herzegovina.

Table 2. The influence of bank assets on the level of insured deposits in the banking sector of the Republic of Srpska[4]

Dependent Variable: ID
Method: Least Squares
Date: 02/16/23 Time: 15:19
Sample: 2009Q4 2021Q4
Included observations: 49

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2344066.	230122.8	-10.18615	0.0000
ASSETS	0.642242	0.033000	19.46163	0.0000
R-squared	0.889608	Mean dependent var		2076385.
Adjusted R-squared	0.887259	S.D. dependent var		770355.9
S.E. of regression	258661.6	Akaike info criterion		27.80439
Sum squared resid	3.14E+12	Schwarz criterion		27.88161
Log likelihood	-679.2075	Hannan-Quinn criter.		27.83369
F-statistic	378.7552	Durbin-Watson stat		0.134346
Prob(F-statistic)	0.000000			

Source: Deposit Insurance Agency of Bosnia and Herzegovina (n.d.) and Reports on the situation in the banking sector of the Republic of Srpska (2022)

4 Data from Appendix 2

Regression analysis showed that the coefficient of determination (r2) is 0.89, i.e. 89% of changes in insured deposits are explained by changes in the level of bank assets in banking sector of the Republic of Srpska. Therefore, the growth of insured deposits in banks is significantly conditioned by the growth of bank assets. The coefficient for the independent variable (bank assets) which is 0.64 showed that an increase/decrease in the amount of bank assets by one observed unit leads to an increase/decrease in the amount of insured deposits in banks by 0.64 units.

The coefficient of 0.64 showed that in the banking sector of the Republic of Srpska there is a greater correlation of changes in insured deposits conditioned by bank assets compared to the entire sector of Bosnia and Herzegovina.

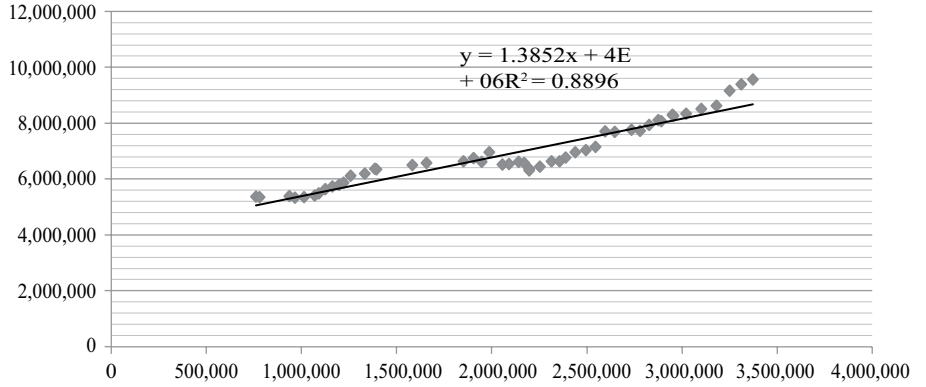

Chart 2. Regression equation of bank assets and insured deposits of the banking sector of the Republic of Srpska

Source: Author's calculation

Regression analysis for banks based in the Federation of Bosnia and Herzegovina showed that the coefficient of determination (r2) is 0.83, i.e. 83% of changes in insured deposits are explained by changes in the level of bank assets in banking sector of the Federation of Bosnia and Herzegovina. Therefore, the growth of insured deposits in banks with headquarters in the Federation of Bosnia and Herzegovina is significantly conditioned by the growth of bank assets, although this conditionality is partly smaller compared to banks with headquarters in the Republic of Srpska.

The coefficient for the independent variable (bank assets) which is 0.36 showed that an increase/decrease in the amount of bank assets by one observed unit leads to an increase/decrease in the amount of insured deposits in banks by 0.36

units. At the same time, this coefficient showed that in the banking sector of the Federation of Bosnia and Herzegovina there is a significantly lower correlation of changes in insured deposits conditioned by bank assets compared to the entire banking sector of Bosnia and Herzegovina and especially in relation to the banking sector of the Republic of Srpska.

Table 3. The influence of bank assets on the level of insured deposits in the banking sector of the Federation of Bosnia and Herzegovina[5]

Dependent Variable: ID
Method: Least Squares
Date: 02/16/23 Time: 15:34
Sample: 2009Q4 2021Q4
Included observations: 49

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1192334.	447405.4	-2.664998	0.0105
ASSETS	0.354958	0.023704	14.97486	0.0000
R-squared	0.826726	Mean dependent var		5372884.
Adjusted R-squared	0.823039	S.D. dependent var		1484890.
S.E. of regression	624644.5	Akaike info criterion		29.56771
Sum squared resid	1.83E+13	Schwarz criterion		29.64493
Log likelihood	-722.4090	Hannan-Quinn criter.		29.59701
F-statistic	224.2463	Durbin-Watson stat		0.084651
Prob(F-statistic)	0.000000			

Source: Deposit Insurance Agency of Bosnia and Herzegovina (n.d.) and Reports on the situation in the banking sector of the Federation of Bosnia and Herzegovina (2022)

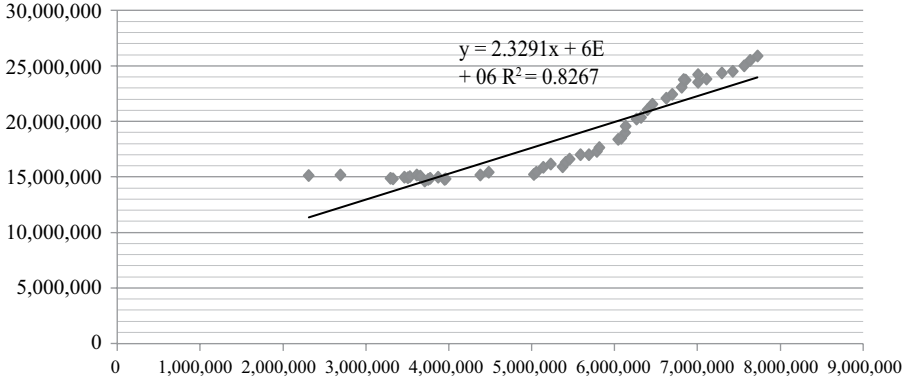

Chart 3. Regression equation of bank assets and insured deposits of the banking sector of the Federation of Bosnia and Herzegovina

Source: Author's calculation

5 Data from Appendix 3

4. DISCUSSIONS

The research conducted on the entire banking sector of Bosnia and Herzegovina showed that there is a high degree of connection between insured deposits and bank assets, i.e. the growth of insured deposits in banks is significantly conditioned by the growth of bank assets. However, there are differences between the banking sector of the Republic of Srpska and the banking sector of the Federation of Bosnia and Herzegovina regarding the unit change in the amount of insured deposits in relation to bank assets. There is a significantly smaller change for banks with headquarters in the Federation of Bosnia and Herzegovina (0.36) compared to banks with headquarters in the Republic of Srpska (0.64).

The above coefficients show that the banks with headquarters in the Republic of Srpska use insured deposits as sources of financing more than in the case of banks with headquarters in the Federation of Bosnia and Herzegovina. One of the reasons may be the fact that banks based in the Republic of Srpska offer higher interest rates on deposits than banks in the Federation of Bosnia and Herzegovina and thus become more competitive in terms of collecting insured deposits. Given that banks determine the price of their placements, among other things, two questions can be asked on the basis of the cost of financing sources.

First, do banks based in the Republic of Srpska achieve lower profitability compared to banks based in the Federation of Bosnia and Herzegovina? In order to be more competitive, the banks based in the Republic of Srpska should not have higher interest rates on credit placements than banks based in the Federation of Bosnia and Herzegovina. On the other hand, if the sources of financing for the banks based in the Republic of Srpska are more expensive, then maintaining a competitive position in terms of lending damages profitability.

Another question would be whether, in order to achieve better profitability, the banks based in the Republic of Srpska place funds at higher interest rates on loans than banks based in the Federation of Bosnia and Herzegovina, in which case the risky clients who are ready to pay higher interest rates on the obtained funds could appear as their clients.

The deposit insurance system is very interested in all of the above due to the exposure of the Deposit Insurance Fund to insured depositors, but there is also an interest of the complete financial safety net.

The significant reliance of banks on insured deposits, as a source of their own financing, also raises the question of the possible effect of moral hazard caused by the deposit insurance system. Deposit insurance, like any other insurance, by its nature, causes possible hazardous behavior of certain participants in the

system (Krunić, 2016). This especially occurs if the deposit insurance system, as well as the entire financial safety-net, does not have sufficiently good protective mechanisms to mitigate such effects of moral hazard (Krunić, 2012).

Due to limited data availability, this research focuses on the entire banking sector in Bosnia and Herzegovina, i.e. in its entities, the Republic of Srpska and the Federation of Bosnia and Herzegovina. The same research could be conducted on individual banks, where it would be determined how individual banks rely on insured deposits as a source of financing, which is particularly useful for planning of the Deposit Insurance Fund. In the process of planning the Deposit Insurance Fund, taking into account the quality of banks in the entire banking sector with a special emphasis on systemically important banks, is of additional importance.

In this paper, we researched the changes of one factor - insured deposits - which affects the financial planning of the Deposit Insurance Fund. In addition to insured deposits, for the planning of the Deposit Insurance Fund, assessments of the sensitivity of individual banks to crisis situations, possible compensation of insured deposits, as well as the percentage of the recovery, are of a key importance. Everything mentioned in this part of the discussion points to possible new directions of research.

5. CONCLUSIONS

In the process of financial planning of the Deposit Insurance Fund the projections of the level of insured deposits in banks are very important. This is because insured deposits represent the Fund's potential exposure to banks facing failure. At the same time, the level of insured deposits is also important from the point of view of the deposit insurance premium, which represents the most significant regular inflow of funds into the Deposit Insurance Fund.

This paper researched the dependence of changes in the level of insured deposits in banks in relation to bank assets. The research confirmed a significant relationship between bank assets and the level of insured deposits in banks in Bosnia and Herzegovina, where there is a difference in the degree of change within the entity's banking sectors. A significantly smaller unit change in the amount of insured deposits is present for the banks with headquarters in the Federation of Bosnia and Herzegovina compared to the banks with headquarters in the Republic of Srpska. This indicates that the banks with headquarters in the Republic of Srpska use insured deposits as a source of financing more than it is the case with the banks based in the Federation of Bosnia and Herzegovina.

This research also opened up some new directions of research in terms of the impact of other elements on the financial planning of the Deposit Insurance Fund, as well as in terms of presence of moral hazard in the banking sector.

Conflict of interests

The author declares there is no conflict of interest.

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APPENDICES

APPENDIX 1:Total bank assets and total insured deposits in Bosnia and Herzegovina (in thousands of BAM)

PERIOD	ID	ASSETS
12/31/2009	3,070,927	20,508,838
03/31/2010	3,470,165	20,545,005
06/30/2010	4,234,691	20,270,722
09/30/2010	4,291,463	20,174,541
12/31/2010	4,476,555	20,331,235
03/31/2011	4,574,866	20,357,094
06/30/2011	4,623,943	20,526,217
09/30/2011	4,736,895	20,805,326
12/31/2011	4,819,378	20,838,125
03/31/2012	4,910,583	20,429,847
06/30/2012	4,974,224	20,685,482
09/30/2012	5,031,580	21,035,477
12/31/2012	5,208,438	21,186,269
03/31/2013	5,345,958	21,144,574
06/30/2013	5,346,136	21,225,064
09/30/2013	5,963,811	21,669,387
12/31/2013	6,137,946	22,023,581
03/31/2014	6,878,250	21,861,648
06/30/2014	6,958,909	22,157,035
09/30/2014	7,127,201	22,841,628
12/31/2014	7,179,572	22,772,464
03/31/2015	7,426,969	22,450,020
06/30/2015	7,500,614	22,844,521
09/30/2015	7,599,284	23,245,507
12/31/2015	7,760,738	23,582,049
03/31/2016	7,888,494	23,389,821
06/30/2016	7,985,629	23,643,050
09/30/2016	8,065,645	24,088,541
12/31/2016	8,354,769	25,013,801
03/31/2017	8,434,390	25,133,007

PERIOD	ID	ASSETS
06/30/2017	8,515,497	25,753,207
09/30/2017	8,575,833	26,527,838
12/31/2017	8,761,191	27,248,816
03/31/2018	8,863,222	27,513,202
06/30/2018	8,996,308	28,750,315
09/30/2018	9,100,186	29,251,866
12/31/2018	9,359,418	29,853,834
03/31/2019	9,478,086	30,180,877
06/30/2019	9,632,538	31,021,246
09/30/2019	9,730,254	31,853,625
12/31/2019	9,954,705	32,509,432
03/31/2020	9,726,348	31,870,052
06/30/2020	9,959,865	31,777,763
09/30/2020	10,126,318	32,131,470
12/31/2020	10,392,961	32,905,011
03/31/2021	10,606,711	33,145,052
06/30/2021	10,814,742	34,153,088
09/30/2021	10,947,188	34,883,089
12/31/2021	11,094,799	35,442,081

Source: Deposit Insurance Agency of Bosnia and Herzegovina (n.d.), Reports on the situation in the banking sector of the Republic of Srpska (2022) and Reports on the situation in the banking sector of the Federation of Bosnia and Herzegovina (2022)

APPENDIX 2: Total assets and total insured deposits in the banks with headquarters in the Republic of Srpska (in thousands of BAM)

PERIOD	ID	ASSETS
12/31/2009	760,187	5,371,717
03/31/2010	778,538	5,353,902
06/30/2010	935,838	5,382,803
09/30/2010	965,723	5,333,324
12/31/2010	1,012,890	5,340,267
03/31/2011	1,068,730	5,403,210
06/30/2011	1,091,941	5,483,844
09/30/2011	1,124,680	5,634,562
12/31/2011	1,163,625	5,731,790
03/31/2012	1,197,961	5,781,132
06/30/2012	1,220,196	5,871,162
09/30/2012	1,257,312	6,118,710

PERIOD	ID	ASSETS
12/31/2012	1,333,571	6,195,503
03/31/2013	1,393,164	6,337,067
06/30/2013	1,384,703	6,356,757
09/30/2013	1,582,244	6,494,131
12/31/2013	1,657,581	6,576,920
03/31/2014	1,852,151	6,623,653
06/30/2014	1,905,102	6,735,392
09/30/2014	1,985,801	6,962,097
12/31/2014	1,946,873	6,615,647
03/31/2015	2,054,644	6,505,974
06/30/2015	2,090,475	6,535,376
09/30/2015	2,142,262	6,613,299
12/31/2015	2,170,507	6,575,166
03/31/2016	2,197,296	6,351,244
06/30/2016	2,197,658	6,307,920
09/30/2016	2,251,582	6,430,092
12/31/2016	2,313,386	6,631,767
03/31/2017	2,355,504	6,628,503
06/30/2017	2,388,404	6,760,363
09/30/2017	2,439,483	6,947,275
12/31/2017	2,495,043	7,038,965
03/31/2018	2,545,142	7,146,694
06/30/2018	2,596,762	7,700,197
09/30/2018	2,645,518	7,681,394
12/31/2018	2,733,059	7,760,073
03/31/2019	2,780,070	7,724,378
06/30/2019	2,826,116	7,938,975
09/30/2019	2,873,541	8,111,725
12/31/2019	2,948,503	8,297,662
03/31/2020	2,890,256	8,066,699
06/30/2020	2,955,423	8,259,899
09/30/2020	3,020,418	8,324,711
12/31/2020	3,101,450	8,508,573
03/31/2021	3,180,418	8,618,003
06/30/2021	3,249,049	9,149,929
09/30/2021	3,309,771	9,389,823
12/31/2021	3,372,324	9,551,253

Source: Deposit Insurance Agency of Bosnia and Herzegovina (n.d.) and Reports on the situation in the banking sector of the Republic of Srpska (2022)

APPENDIX 3: Total assets and total insured deposits in the banks with headquarters in the Federation of Bosnia and Herzegovina (in thousands of BAM)

PERIOD	ID	ASSETS
12/31/2009	2,310,740	15,137,121
03/31/2010	2,691,627	15,191,103
06/30/2010	3,298,853	14,887,919
09/30/2010	3,325,740	14,841,217
12/31/2010	3,463,655	14,990,968
03/31/2011	3,506,136	14,953,884
06/30/2011	3,532,002	15,042,373
09/30/2011	3,612,215	15,170,764
12/31/2011	3,655,753	15,106,335
03/31/2012	3,712,622	14,648,715
06/30/2012	3,754,028	14,814,320
09/30/2012	3,774,268	14,916,767
12/31/2012	3,874,867	14,990,766
03/31/2013	3,952,794	14,807,507
06/30/2013	3,961,433	14,868,307
09/30/2013	4,381,567	15,175,256
12/31/2013	4,480,365	15,446,661
03/31/2014	5,026,099	15,237,995
06/30/2014	5,053,807	15,421,643
09/30/2014	5,141,400	15,879,531
12/31/2014	5,232,699	16,156,817
03/31/2015	5,372,325	15,944,046
06/30/2015	5,410,139	16,309,145
09/30/2015	5,457,022	16,632,208
12/31/2015	5,590,231	17,006,883
03/31/2016	5,691,198	17,038,577
06/30/2016	5,787,971	17,335,130
09/30/2016	5,814,063	17,658,449
12/31/2016	6,041,383	18,382,034
03/31/2017	6,078,886	18,504,504
06/30/2017	6,127,093	18,992,844
09/30/2017	6,136,350	19,580,563
12/31/2017	6,266,148	20,209,851
03/31/2018	6,318,080	20,366,508
06/30/2018	6,399,546	21,050,118
09/30/2018	6,454,668	21,570,472

PERIOD	ID	ASSETS
12/31/2018	6,626,359	22,093,761
03/31/2019	6,698,016	22,456,499
06/30/2019	6,806,422	23,082,271
09/30/2019	6,856,713	23,741,900
12/31/2019	7,006,202	24,211,770
03/31/2020	6,836,092	23,803,353
06/30/2020	7,004,442	23,517,864
09/30/2020	7,105,900	23,806,759
12/31/2020	7,291,511	24,396,438
03/31/2021	7,426,293	24,527,049
06/30/2021	7,565,693	25,003,159
09/30/2021	7,637,417	25,493,266
12/31/2021	7,722,475	25,890,828

Source: Deposit Insurance Agency of Bosnia and Herzegovina (n.d.) and Reports on the situation in the banking sector of the Federation of Bosnia and Herzegovina (2022)

ФУНКЦИОНАЛНА ПОВЕЗАНОСТ АКТИВЕ БАНАКА И ОСИГУРАНИХ ДЕПОЗИТА У БОСНИ И ХЕРЦЕГОВИНИ – ПЕРСПЕКТИВА ФОНДА ЗА ОСИГУРАЊЕ ДЕПОЗИТА

1 Горана Крунић, Агенција за осигурање депозита Босне и Херцеговине, Бања Лука, Босна и Херцеговина

САЖЕТАК

Пројекција нивоа осигураних депозита у банкама је од кључног значаја за финансијско планирање Фонда за осигурање депозита као саставног дијела система осигурања депозита. Са једне стране, у ситуацији када долази до пропасти банака, средства Фонда за осигурање депозита се користе за исплату осигураних депозита у тим банкама или за финансирање процеса реструктурисања таквих банака, што представља реалан одлив средстава из Фонда, док, са друге стране, главни редовни приливи средстава у Фонд за осигурање депозита се остварују из премија осигурања које се, по правилу, обрачунавају на основицу осигураних депозита у свим банкама. Истраживачки проблем који се поставља у овом раду јесте: како предвиђати промјене нивоа осигураних депозита у банкама, односно како се тај ниво у банкама мијења у односу на укупну активу банкарског

сектора. Истраживање је обухватило период од 2009. до 2021. године. Као зависна промјењива постављен је ниво осигураних депозита у банкама, а као независна промјењива актива банака. Истраживање је проведено код банака које послују у Босни и Херцеговини. Истраживање је потврдило значајну условљеност раста осигураних депозита растом активе банака, а отворило је и неке нове правце за даља истраживања у погледу утицаја других елемената на финансијско планирање Фонда за осигурање депозита и присутности моралног хазарда у банкарском сектору.

Кључне ријечи: *Фонд за осигурање депозита, осигурани депозити.*