DETERMINANTS OF FINANCIAL INCLUSION IN THE WESTERN BALKANS

DETERMINANTE FINANSIJSKE INKLUZIJE NA ZAPADNOM BALKANU

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Abstract

The aim of this research is to provide new empirical evidence on the determinants of financial inclusion in the selected Western Balkan economies using a panel data method between 2004 and 2021. This research covered six Western Balkans countries based on the data that was available. The results highlight the significance of income, quality of legal system, number of internet users, and decline of unemployment rate in promotion of financial inclusion across the Western Balkan countries. In conclusion, the study reveals that building a financially inclusive society in the Western Balkans would require reducing unemployment, increasing income and improving ITC communication infrastructure, and improving the legal system. Likewise, it is indicated that policy makers should adopt more modifications and changes in existing economic policies in order to achieve a higher level of financial inclusion.

Keywords: Financial inclusion, panel data, Western Balkans, Legal system quality, Income

Sažetak

Cilj ovog istraživanja je pružiti nove empirijske dokaze o determinantama finansijske uključenosti u odabranim ekonomijama Zapadnog Balkana koristeći metodu panel podataka između 2004. i 2021. Ovo istraživanje je obuhvatilo šest zemalja Zapadnog Balkana na osnovu podataka koji su bili dostupni. Rezultati ističu značaj prihoda, kvaliteta pravnog sistema, broja korisnika interneta i pada stope nezaposlenosti u promociji finansijske inkluzije u zemljama Zapadnog Balkana. Zaključno, studija otkriva da bi izgradnja finansijski inkluzivnog društva na Zapadnom Balkanu zahtijevala smanjenje nezaposlenosti, povećanje prihoda i poboljšanje komunikacione infrastrukture ITC-a, te poboljšanje pravnog sistema.

Isto tako, ukazuje se da kreatori politike treba da usvoje više modifikacija i promjena u postojećim ekonomskim politikama kako bi postigli viši nivo finansijske uključenosti.

Ključne riječi: finansijska inkluzija, panel podaci, zapadni Balkan, kvalitet pravnog sistema, prihod

1. INTRODUCTION

Developing countries have been making economic reforms over the past few decades to make sure that more people have access to finances. Accordingly, contemporary economic research in the last decades deals with the study of the effects of financial inclusion and its progress. Financial inclusion is seen as key to reducing poverty and improving financial success in many countries. The findings from many empirical studies on financial inclusion trends, however, show that financial inclusion is accompanied by many difficulties, dilemmas and challenges. Relatively modest progress towards to financial inclusion is primarily indicated by recent empirical studies and comparisons between different countries and regions in the world. With emerging countries, it is becoming increasingly important to focus on financial inclusion and reducing inequality across the population, in order to help speed up economic growth. Basically, the more people that have access to financial services, the more the financial sector can grow. In fact, we need to make sure financial sector services keep developing (Anarfo et al.2019; Sharma, 2016).

Financial inclusion has started to have growing importance from academics as well as policy-makers. It might explained with an extensive strategy that is used to attain development goals of United Nations (Sahay et al. 2015; Demiguc-Kunt et al. 2017); or to improve social inclusion levels of the population (Bold et al.2012); or to reduce poverty (Chibba, 2009; Neaime and Gaysset, 2018). Additionally, it brings some more of socio-economic benefits for the society (Sarma and Pais, 2011). Financial inclusion helps to enhance savings and therefore provides resources for investment so investors can borrow to finance their activities and this creates more economic growth (Norris, et al.2015). Technology-driven financial inclusion is a great way to cut down transition costs and get more people to use financial services. This makes it easier to manage funds and lowers the cost of investing, encouraging more people to do so. It also means that small and medium businesses can access external financing instead of being restricted to the limited formal services offered by traditional banks (Karpowicz, 2014).

It looks like the Western Balkans still have a lot of work to do in terms of creating policies that would get people to use financial services and make them more accessible. But, the literature on the topic isn't quite thorough enough and there's a

lack of research done on determinants of financial inclusion in the region. Not much is being said about how government policies can be used to make financial services more accessible and help bring about economic growth in certain countries. An earlier review of the available literature pointed out the need for more research on what affects financial inclusion in the Western Balkan countries. Accordingly, the aim of this paper is to provide new evidence on the determinants of financial inclusion in the selected Western Balkan economies between 2004 and 2021, in order to conclude which indicators should special attention be given to, making the further progress in financial inclusion. This study aims to address the gap in the literature by testing and estimating the statistically significance of the selected economic – specific variables on financial inclusion level in the Western Balkans.

2. LITERATURE REVIEW

Governments and policy-makers are determined to increase the financial inclusion in their countries in order to reduce inequality. Banerjee and Newman (1993) state that due to endowments people are limited with their vocational choices (jobs they choose) and that their job choices predetermine how much they can save, their risk possibilities in a long run growth and income distribution. The authors that explored benefits of the financial inclusion state that it provides a lot of benefits, especially those financial services available on the mobile phones since they can help to generate income earning potential (Demirguc-Kunt et al., 2019).

Recent studies have focused on some aspects of financial inclusion like accelerating development with financial inclusion (Sarma and Pais, 2011) relationship between financial inclusion and economic growth (Mohan, 2006), the role of the financial innovation and technology in financial inclusion (Donovan, 2012)

Still, when it comes to emerging European countries in particular there are not many studies on economic growth potential with the aspect of financial inclusion. Therefore, this paper focuses on the study of financial inclusion in the Western Balkan region.

Barajas et al (2020) studied the global financial index, a survey of 150,000 households in 140 countries. They saw that access to financial services had improved in many countries, but that differences remained due to country characteristics, with wealthier countries having higher levels of financial inclusion and poorer countries lagging behind. This gap was mainly attributed to economic development, income levels, and cultural features of each country. Sahay et al (2015) state that financial inclusion has a significant impact on 10-year growth, so one can conclude that growth of an economy increases with the level of financial inclusion so that a country can derive more growth benefits if financial inclusion is taken care of.

When it comes to Europe, there is a wide range of financial inclusion depending on the country. Both developed and developing countries have their own levels of financial inclusion, since their economies are at different stages. Developed countries in Europe have more access to financial services since their citizens can afford them, but developing countries still need to make policies to make financial inclusion a reality – this will help them reap the rewards of economic growth. In investigation income inequality in the NMS(New member stataes) countries between 2000 and 2016, Ganić (2021) finds that access to financial services and financial development lead to decrease income inequality in the region, but it did not change much the lives of poor people, especially those who are not part of the formal financial sphere. Some countries have already made financial inclusion a priority. In India for example, Chakravarty and Pal (2013) point out that social banking policies played an important role in promoting financial inclusion. Murshed et al. (2023) explored financial inclusion in South Asia. The study finds that internal conflict resolution, lower levels of corruption, higher mobile subscriptions lead to improved financial inclusion. Zuzana et al. (2014) used the World Bank Global Findex database for 2011 to analyze financial inclusion in China. They found some variables such as income, education, age, and gender that have a significant impact on financial inclusion measured by formal accounts, formal savings, and formal credit.

Policymakers in transition countries are looking for ways to deepen the financial sector and increase the provision of financial services to the population. Several studies for the European transition countries region such as: Ganić (2016), Mero (2004), Afzal, (2023) problematized the low level of financial depth and delays in transition economies for the old EU members. When it comes to other emerging European countries financial inclusion Vo, et al (2019) found that the more access to financial services is influenced by the more improvement in income level, higher degree of investment and less unemployment rate. Ganic (2023a) looked into the relationship between economic growth, financialization, and unemployment in NMS-11 countries between 1995q1 and 2021q4 and found that financialization had a negative impact on growth in the short term. Basically, the process of financialization in NMS-11 caused economic activity to go down in the real sector while the financial sector got a boost. Jolevska and Andovski (2017) study the level of financial inclusion in North Macedonia, using selected the Global financial index indicators. The authors find that more of the population uses the cash payment rather than credit cards, indicating lower level of financial inclusion.

Zoli (2007) paid special attention to the emerging European countries that have made progress when it comes to financial development but not in equal way. Mostly older people and younger people in rural areas have lower access to financial services, unlike in urban areas; lower income population also has limited access to

financial services and when it comes to gender women in urban areas have more access to financial services than those in rural areas.

Park and Mercado (2018) find that there is a correlation between financial inclusion and low income variation. This means that having reduction of low incomes of population, meaning reducing the number of people with low wages by having wage increases, will lead to more growth. Sharma (2016) argued that the more available financial services the more economic growth for a country.

Norris et al. (2015) looked at how reducing access to financial services affects GDP, inequality, and other factors in low-income countries. They found that reducing the barriers to financial services leads to more people having access to it, which in turn boosts the economy. Levine et.al (2000) studies the effects of exogenous parts of financial intermediary's development on economic growth. They found that there is a strong linkage between the exogenous parts of financial intermediary's developments and economic growth in the long run.

Ganic (2023b) had a look at what the effects of financial inclusion were on income inequality in 22 members of the European Union (EU), split into two subpanels – Old EU members and New EU Member states (NMS) – between 2004 and 2019. His research found that for the Old EU members, extending ATM services reduced income inequality in the long-term, while for the NMS countries, the effects of financial inclusion on income inequality were weaker and more subdued. In 2016, Yorulmaz looked into how financial inclusion of European Union members and its candidate countries had changed over time. He tested how the financial inclusion index was related to certain macroeconomic variables like GDP per capita, unemployment rates, income, Gini coefficient. He discovered that financial inclusion had a positive link to income, but a negative one with unemployment and Gini coefficient. It looks like the Western Balkans still have a lot of work to do in terms of creating policies that would get people to use financial services and make them more accessible. But, the literature on the topic isn't quite thorough enough and there's a lack of research done on financial inclusion and economic growth in the region. What is also a problem in the literature is the fact that it contains little empirical evidence regarding determinants of financial inclusion in the Western Balkans. Not much is being said about how government policies can be used to make financial services more accessible and help bring about economic growth in certain countries.

3. METHODOLOGY

Most empirical studies agree that financial inclusion is necessary for economic growth. So, the aim of this study is to explore the factors that influence on financial inclusion in the Western Balkans, in order to be able to formulate and implement policies that will increase financial inclusion. To see how financial inclusion has

been influenced in the Western Balkan countries, data has been sourced from the World Bank database over the past 16 years for Albania, Bosnia and Herzegovina, North Macedonia, Montenegro, Kosovo and Serbia.

Table 1. Summary of variables used in regression model

Variable name	Notation	Measurement	Literature
Financial Inclusion	ATM	Automated teller machines (ATMs) (per 100000 adults)	Ganić, (2023b), Kim et al. (2018), Murshed et al. (2023)
Income	GDP Per capita	Gross domestic product expressed in constant US dollars	Sarma and Pais (2011), Park and Marcodo (2015), Zuzana et al. (2014), Yorulmaz (2016)
Legal system quality	RULOL	Rule of law captures percepti-ons of enforcement of agree-ments, property rights, the police, and the justice system, as well as how safe they feel from crime and violence	Ozili (2021), Park and Mercado (2015)
Inflation rate	INFL	Inflation, consumer prices (annual %)	Park and Marcodo (2015), Ajide (2017).
Unemployment	UNEMP	Unemployment rate is % of total labor force (ILO estimate)	Mol, (2014); Sykes et al., (2016)
Remittance	REM	Personal remittances, received (% of GDP)	Murshed et al. (2023), Kim et al. (2018)
Network	INTERU	Individuals using the Internet (% of population)	Le et al (2019), Evans and Adeoye (2016), Evans (2016), Sarma and Pais (2008).

Source: Authors' compilation

The World Bank sorts out a few indicators to look at when gauging financial inclusion. For this study, we use financial access indicator: the indicator Automated teller machines (ATMs) (per 100,000 adults) as a dependent variable and proxy for financial inclusion (FININC). A few studies as Ganić, (2023b), Murshed et al. (2023), Le et al (2019), Kim et al. (2018), used the same variable in the researches for financial inclusion.

Out of all the factors talked about in the literature that affect financial inclusion, the ones that could be measured by the data available for countries in the Western Balkans were chosen for the calculations. Research by Mandira and Pais (2008), Sarma and Pais (2011), Park and Markodo (2015) and Zuzana et al. (2014) conclude that lack of regular income is the main cause of financial exclusion.

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People with low income can't open savings accounts and can't get credit. Mandira and Pais (2008) found that GDP per capita affects the level of financial inclusion in a country, and that household economic status is related to the level of financial inclusion. Le et al (2019), Bendig, Giesbert, and Steiner (2009) in their research believe that employment status enhanced adoption of financial services. Therefore, the unemployment variable is included to measure its impact on financial inclusion.

Le et al. (2019), Evans and Adeoye (2016), Sarma and Pais (2008), Evans (2016) argue that physical connectivity and information infrastructure is important for financial inclusion. For example, Evans (2016) found a link between internet users and financial inclusion, where the internet enabled people in isolated parts of Africa to get credit. It also enabled illiterate customers to manage their savings through mobile phones. Therefore, a variable Network is included in the model to measure its effect on financial inclusion.

In the Western Balkan countries, individuals and households will have a strong reason to join the formal financial sector as they will have the most secure opportunity to receive remittances from their relatives living and working abroad. Financial remittances sent by migrants to their hosts will be an incentive for their relatives to join the formal financial sector, receive remittances and increase financial inclusion (Murshed et al. 2023; Kim et al. 2018).

Next variable, Rule of law is used as a proxy variable for legal system quality. In investigation correlation between financial inclusion and legal quality system for 27 developed countries Ozili (2021) finds that improvements in the quality of the legal system go hand in hand with improvements in financial inclusion. If financial inclusion and the legal system are improved, people who were previously underserved will have access to finance, and the law will protect them from unfair income discrimination.

People can increase their opportunities to get a job or create their own employment if they are given access to financial services and the financial ability to use them effectively. This would allow them to invest in their education and finance their income generating projects (Mol, 2014; Sykes et al., 2016). It is expected that a rise of financial inclusion leads to lower unemployment rate.

The developed model can be presented by the following equations:

$YFININC = f(INTERU, LITRATE, REM, GDPC, UNEMPL, INFL)$

$$YFININC_{it} = \beta_0 + \beta_1 INTERU_{it} + \beta_2 RULOL_{it} + \beta_3 GDPPC_{it} + \beta_4 UNEMPL_{it} + \beta_5 INFL_{it} + \beta_6 REM_{it} + UIT \qquad \text{eq. (1)}$$

where i symbolizes country and t symbolizes time; i = 1-6 countries and t = 2004-2021.

The research aims to investigate the most significant determinants of financial inclusion the six Western Balkan countries between 2004 and 2021.

The data set for this model is balanced. First, we run tests to check if the assumptions like correlation among residuals, and stationarity are met, as Jarque-Bera test for normality of the residuals. Then, we run F test, Breusch and Pagan Lagrangian multiplier test and the Hausman test to decide whether to use a OLS model, Fixed effects or Random effects model.

4. EMPIRICAL FINDINGS

Table 2 gives a breakdown of the averages, standard deviations, the lowest and highest values of eleven variables used for the regression analysis. The average for ATM variable is 4.23. Kosovo had the smallest value of Automated teller machines (ATMs) (per 100000 adults), while the highest share was found in Montenegro (2012). The standard deviation from the mean for gross national savings was 19.64 percent.

Table 2. Descriptive statistics

	ATM	INTERU	RULOL	REM	GDPPC	UNEMPL	INFL
Mean	46.06227	57.91878	44.81233	9.251553	5020.447	19.43023	2.617203
Median	48.34500	65.35851	45.19231	9.644713	4981.090	17.80500	1.872702
Maximum	87.05000	89.44303	58.17308	17.02554	7684.180	37.32000	16.11998
Minimum	4.230000	2.420388	20.57416	2.81307	2522.449	6.570000	-1.584100
Std. Dev.	19.64069	22.11281	8.569571	4.329685	1206.474	6.729090	3.288892
Skewers	0.010960	-0.832197	-0.515619	-0.184020	0.125507	0.795537	1.983046
Kurtosis	2.434339	2.592997	2.775166	2.269366	2.509151	3.243915	7.394931

Source: Authors' calculations

The average GDP per capita in 2021 was around $5020.44 with a standard deviation of $1206.47. Kosovo had the lowest GDP while Montenegro had the highest. The average unemployment rate was 19.43%, with a standard deviation of 6.72%. Kosovo had the slowest growth rate among the Western Balkan countries. The highest remittance rate was 17.02% with a standard deviation of 4.33%, and the lowest was 2.81%. The average inflation rate across the Western Balkans was found to be 2.61%. The highest average inflation rate was 16.12% in Serbia, while the lowest average was in Bosnia and Herzegovina (-1.5%). Figure 1 shows a scatter plot matrix for the data on selected variables used in the models. It indicates a positive relationship between all variables where all the two-way combinations of variables have a good relationship.

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Figure 1. Scatter plot matrix of selected variables
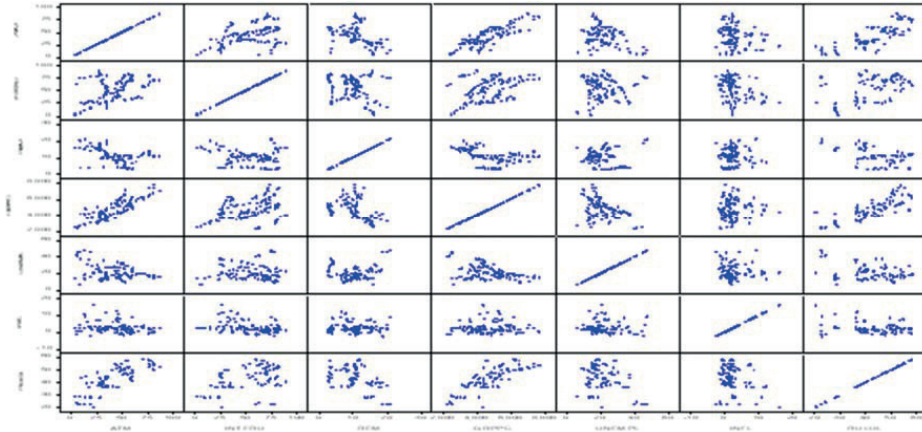
Source: Authors' calculations

We can check if the series is stationary by looking at the correlogram plot. If the data is mostly above or below the line which is the zero axes, and the values in the AC column are not zero, then the sequences seem to be non-stationary – like what we see in Figure 2. From the correlograms shown in Figure 2, we see that both series are non-stationary, so we need to make them stationary to create a meaningful relationship between them.

Figure 2. Correlogram plots, AC, PAC

Included observations: 100 after adjustments						
Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
.|*** |	.|*** |	1	0.354	0.354	12.890	0.000
.|* |	.|. |	2	0.168	0.050	15.844	0.000
*|. |	*|. |	3	-0.070	-0.165	16.357	0.001
.|. |	.|* |	4	0.067	0.155	16.829	0.002
.|. |	*|. |	5	-0.028	-0.077	16.912	0.005
.|. |	.|. |	6	-0.036	-0.058	17.049	0.009
.|. |	.|. |	7	-0.035	0.047	17.186	0.016
.|. |	.|. |	8	-0.033	-0.054	17.308	0.027
.|. |	.|. |	9	-0.061	-0.049	17.722	0.039
.|. |	.|. |	10	-0.056	0.001	18.081	0.054
*|. |	*|. |	11	-0.102	-0.098	19.264	0.057
*|. |	*|. |	12	-0.126	-0.080	21.106	0.049

Source: Authors' calculations

To check this, we use the unit root test and the Augmented Dickey-Fuller test to check for stationarity in the equation, and then expand the equation.

Table 3. Unit root results

	Level (0)	Differenced (I)
ATM	47.0232***	28.8023***
REM	52.9381***	36.0100***
GDPPC	4.77763	24.6783**
UNEMPL	12.5572	33.2964***
INFL	21.2995**	71.1059***
RULOL	20.9975**	29.4823***
INTERU	5.20406	20.1340**

Source: Authors' calculations

For a statistical check of stationarity, we additionally conduct a unit root test with the help of the Augmented Dickey-Fuller test. We will first check the stationarity at the level, and then run the first differentiation. The obtained results shown in Table 3 reveal that all variables included in the model are stationary after the first differentiation. The variable income has a positive effect on financial inclusion as measured by the number of ATMs. The results make it clear that income has a significant influence on the number of ATMs available – all three models show this at the 1 percent level (Table 4). In other words, the result indicates that financial inclusion will grow by 0.010710% (Model 1), 0.013387% (Model 2), 0.011953% (Model 3), when GDP per capita increases by 1%.

Table 4. Regression results

	Model 1: OLS model	Model 2: Fixed effect	Model 3 : Random effects model
	(1)	(2)	()
INTERU	0.215496**	0.242260***	0.322202**
REM	-0.924268***	-0.411668	-0.431287
GDPPC	0.010710***	0.013387***	0.011953***
UNEMPL	-0.702541***	-0.448331**	-0.546654**
INFL	-0.514099	0.289268	-0.109970
RULOL	1.229922***	-0.044892	1.461794***

R-squared	0.646328	0.624283	0.667312
Adjusted R-squared	0.616856	0.608859	0.633479
S.E. of regression	12.15732	5.929440	11.89067
F-statistic	27.1222	59.92554	19.72386
Prob(F-statistic)	0.000000	0.000000	0.000000

Source: Authors' calculations

The Network variable also has a positive regression coefficient on financial inclusion in all three models. The growth in the number of Internet users increases financial inclusion in the region. The results indicate that the number of Individuals using the Internet statistically significantly and positively associated with financial inclusion at 1 percent and 5 percent level. It is in the line with similar studies done by Evans and Adeoye (2016), Evans (2016), Sarma and Pais (2008).

The study also confirms our expectations that unemployment rate has inverse relation with a level financial inclusion. The coefficient for unemployment is negatively correlated, when the unemployment increases by 1%, the financial inclusion will decrease by 0.702541% (Model 1), 0.448331% (Model 2), 0.546654% (Model 3). The coefficient of Rule of law is 1.229922 (Model 1) and 1.461794 (Model 3) and positively significant at the 1% level. It means with increasing of quality of law and legal system by 1 percent point, the financial inclusion will increase by 1.229922 percent point (Model 1) and 1.461794 percent points (Model 3). It is supported by previous research done by Ozili (2021), Park and Mercado (2015).

The link between financial inclusion and inflation looks to be negative, as the coefficient value is -0.109970. But there doesn't seem to be any real impact on financial inclusion in the Western Balkans, as the variable remittance (in Model 2 and Model 3).

So, Table 5 shows that we used the F test, Breusch Pagan and Hausman's test to work out which of the models worked best with our data. The F test showed the p value was 0.0000 so we had to reject the null hypothesis and the OLS model wasn't a good fit. We then used the Hausman test to compare the FE and RE models. The estimates of the Hausman test reveal that the RE model is preferable than the FE model (e.g. Chi-square statistic: 3.616659, with a probability of 0.7284). So, it looks like our results lean towards the RE model.
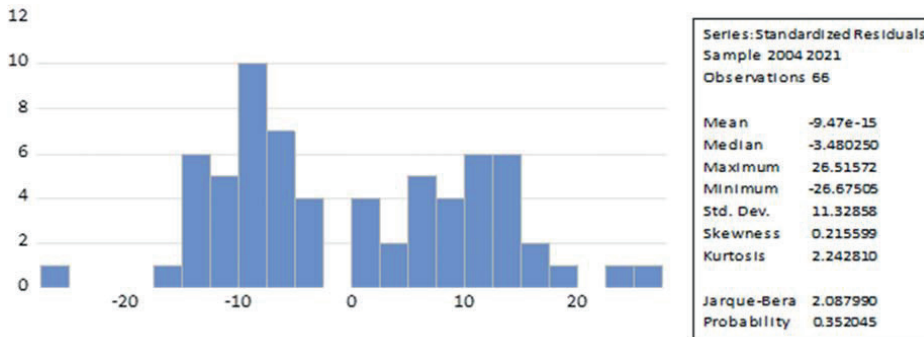
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Table 5. Model Selection

Pooled vs Fixed	F test that all u_i=01	F(5, 32)= 27.1222	Prob>F = 0.0000
Pooled vs Random	Breusch and Pagan Lagrangian multiplier test	chibar2(01) = 74.51954	Prob. = 0.0000
Random vs Fixed	Hausman Test	chi2(6)= 3.616659	Prob. = 0.7284

Source: Authors' calculations

Moreover, the econometric model is tested for possible problems of normality distribution using the Jarque-Bera test. Figure 3 shows the result of the Jarque-Bera test for normality of the residuals. The p-value of the JB test (0.352045) is not significant, which means that the assumption of normality is accepted. This leads us to the conclusion that the residuals are distributed normally.

Figure 3. Test of normality distribution

Series: Standardized Residuals	
Sample 2004 2021	
Observations 66	
Mean	-9.47e-15
Median	-3.480250
Maximum	26.51572
Minimum	-26.67505
Std. Dev.	11.32858
Skewness	0.215599
Kurtosis	2.242810
Jarque-Bera	2.087990
Probability	0.352045

Source: Authors' calculations

5. CONCLUSION

This paper takes a look at what determines financial inclusion in the Western Balkans. It digs into what makes some places have higher levels of inclusion than others, what the major roadblocks are, and what the countries in the Western Balkans can do to get better access to financial services. The results highlight the significance of income, quality of legal system, number of internet users, and decline of unemployment rate in promotion of financial inclusion across the Western Balkan countries. In other words, it means if a country has a low GDP per capita, low rates of internet users, poor legal system, high unemployment rate seems to be less financially inclusive. In conclusion, our research shows that building a financially inclusive society in the Western Balkans would require reducing

unemployment, increasing income and ITC communication infrastructure, and improving the legal system. Likewise, it is indicated that policy makers should adopt more modifications and changes in existing economic policies in order to achieve a higher level of financial inclusion.

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