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# Exploring The Nexus Between Financial Inclusion, Poverty, Digitalization And Sustainable Development Goal

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**Abstract**: *The significance of sustainability has been increasing and also financial organizations adopted a broad view of their purposes to serve all stakeholders. It is important to respond to their social impact. The purpose to empower the digital economy can be achieved through being reliable and enhancing access to financial services to include everyone in the digital economy while cash is used less frequently. The digital transformation can have the potential for expanding access of disadvantaged or unbanked groups to financial services and reduce poverty. Financial inclusion aims at integrating economic agents into the financial system in order to improve economic development but also quality of life. Financial inclusion through digitalization enables accessible and available financial services to people and companies and hence, facilitates to implementation of Sustainable Development Goals. This paper explores the relationship between digitalization, financial inclusion, poverty and sustainability for Balkan countries. It discusses the potential of financial inclusion for economic development. The paper concludes that digitalization improves accessibility to financial services and contributes to the accomplishment of Sustainable Development Goals. In addition, Remittance inflow, globalization and compliance with the law (measured as role of law index) decreasing poverty in these countries.*

**Keywords:** *Financial inclusion; Sustainability; Poverty; SDGs; Digitalization; Digital economy; Balkan countries; Balkan region.*

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## 1. Introduction

The significance of sustainability has been increasing and financial organizations also adopted a broad view of their purposes to serve all stakeholders. It is important to respond to their social impact. The purpose to empower the digital economy can be achieved through being reliable and enhancing access to financial services to include everyone in the digital economy while cash is used less frequently. The digital transformation can have the potential for expanding access of disadvantaged or unbanked groups to financial services. Financial inclusion aims at integrating economic agents into the financial system in order to improve economic growth. Financial inclusion through digitalization enables accessible and available financial services to people and companies and hence, facilitates to implementation of Sustainable Development Goals. The 2030 SDG agenda emphasizes the important role of the financial system in moving towards a sustainable economy. Financial inclusion can enable other sustainable development goals (SDGs) such as SDG 1: No poverty, SDG 2: Zero hunger, SDG 3: Good health and well-being, SDG 5: Gender equality, SDG 10: Reduced inequalities. According to the World Bank, Financial inclusion facilitates the implementation of 7 Sustainable Development Goals (World Bank, 2022). In particular, it is related to the SDGs 1, 4, 5, 8 9, 10, and 12 goals (Vasile et al., 2021).

Society has been shaped by the impact of technological development. Financial services can be affordable and accessible through digitalization. The Covid-19 pandemic speeded up the digital transformation, new financial technologies - Fintech, and digital financial services (Boedu et al., 2021). Contactless payment in Fintech helps prevent the spread of the virus and therefore, people globally began using digital financial services to avoid physical contact (Abu Dagar et al., 2021; Gigauri et al., 2021). Consequently, people's attitude and behavior towards digital financial services changed in favor of FinTech (Abu Dagar et al., 2021).

Financial inclusion allows people and companies to access financial products and services including payments, credits, transactions, and savings. Digital financial inclusion, while applying new technologies, offers financial services to individuals as well as to private, public, and nonprofit sectors in a more effective way in comparison to traditional financial services (Gomber et al., 2017; Ozili, 2018). The World Bank sees financial inclusion as a tool for poverty reduction as well as an opportunity for economic development through digital financial services (World Bank, 2018). The usage of digital technologies in financial services can overcome geographical boundaries and

decrease costs for small companies (Geng & He, 2021). Moreover, financial inclusion stimulates employment (Geng & He, 2021) while restrictions on financial accessibility cause unemployment due to its negative effect on business (Benmelech et al., 2019; Boustanifar, 2014; Kling et al., 2020; Grigorescu & Ion, 2021).

Since the interest towards sustainability, corporate responsibility, and stakeholder capitalism is growing (Andrei et al., 2018; Foroudi et al., 2021; Gigauri, 2021; Gigauri et al., 2021; Palazzo et al., 2022; Panait et al., 2021; Puime et al., 2022), especially after the uncertainties due to the COVID-19 pandemic that accelerated the digital economy and the digital transformation, businesses need to respond to current challenges and contribute to the achievement of sustainable development goals. In fact, the global economy evolves towards digital technologies while sustainability has become an integral part of the business sector (Foroudi et al., 2021). In this light, financial inclusion through digitalization can present a solution to economic recovery.

This paper explores the relationship between digitalization, financial inclusion, poverty, and sustainability. The interrelationship between financial inclusion, digitalization, and sustainable development can vary across countries depending on their economic development, financial literacy, technological infrastructure, financial institutions, and data protection regulations. The paper discusses the potential of financial inclusion for economic development and in this regard analyses Balkan countries. It concludes that digitalization improves accessibility to financial services and contributes to the accomplishment of Sustainable Development Goals.

## 2. Problem Statement

Financial inclusion promises to alleviate poverty and contribute to equality and economic welfare. It can also lead to the efficient allocation of resources and to economic development.

Financial inclusion can result in income equality in rural regions because of entrepreneurship possibilities (Huang & Zhang, 2019; Zhang et al., 2020). Although affordable financial products and services have become more accessible, there still are large groups of the adult population who are excluded financially, especially those living in developing regions. It is considered that 1.7 billion adults have no access to a bank account while 760 thousand of them who have the access never used their accounts (Demirguc-Kunt et al., 2018). Two-thirds of the world's population lacks affordable financial services due to the distance, necessary documentation, or lack of trust (World Bank, 2018). Lack of access to digital technologies

and insufficient skills hinder financial institutions to attract more consumers (Raimi et al., 2021). Study results highlight that young and high-income consumers are more willing to use financial technologies (Johan, 2020). In many countries, consumers can be excluded from digital financial services because they do not have enough income to purchase devices performing those operations and hence, cash remains their payment option (Vasile et al., 2021). Furthermore, consumer perception of the sustainability practice of financial institutions (Grigorescu et al., 2021a) and their attitudes toward digital technologies play a key role in advancing financial inclusion (Vasile et al., 2021).

Financial inclusion is achievable through digitalization. The recent research in 50 countries confirmed the positive effect of financial technologies on a country economy and highlighted the main role of regulations in the Fintech sector (Kowalewski & Pisany, 2020). In addition, the study of the European countries confirms the positive impact of digitalization on people's welfare as the digitalization of the economy results in developed human capital (Grigorescu et al., 2021b). Therefore, FinTech offers to reach economic players in remote areas through, for example, mobile phone services. In developing countries, 8 out of 10 people possess a cell phone (Demir et al., 2020). Consequently, they can use mobile money, have access to a bank account, credits, deposit savings, or enclose remittances (Ouma et al., 2017). However, including less educated, underprivileged and poor people in the financial system through technologies can pose problems as it can increase indebtedness. In addition, although digital technologies possess the power to be accessible globally, they can present a danger to the financial system by their decentralized nature. Moreover, increased digitalization poses certain risks in terms of data protection and privacy. However, Fintech is expected to increase opportunities and decrease risks for the whole society.

Financial inclusion enabled by FinTech is anticipated to reduce financial exclusion as well as income inequality and hence, achieve SDGs (Demir et al., 2020; Gosayi, 2018; Tchamyou et al., 2019). Indeed, the previous literature illustrates that accessible and available financial services increase income equality and equal income distribution (Park & Mercado, 2018; Turégano & Herrero, 2018). Furthermore, financial inclusion is more beneficial for low-income families than for high- or average-income people (Zhang & Posso, 2019). Yet studies indicate that the impact of financial inclusion on reducing income inequality is stronger in higher-income countries (Demir et al., 2020). Financial inclusion decreases income inequality as it can enhance education and business opportunities but it increases income inequality if people depend on expensive loans (Kling et

al., 2020). The prior research shows that financial inclusion contributes to investment in education while formal and informal loans have a contradictory effect (Kling et al., 2020). Higher interest rates on loans can cause underinvestment in education and in this case financial inclusion cannot lead to higher earnings due to the lack of education (Kling et al., 2020).

Studies show that financial inclusion has a positive influence on the European banking system since more account owners and digital payments are translated into a stable financial industry (Danisman & Tarazi, 2020). However, disadvantaged adults must be targeted as there are 37mln individuals without a bank account in Europe, and 56mln people do not use digital payments (Danisman & Tarazi, 2020). Studies demonstrate that financial inclusion has more benefits for disadvantaged groups including undereducated and unemployed adults as well as those living in the countryside (Danisman & Tarazi, 2020). Financial inclusion is evaluated in three areas: (1) Access to financial services, (2) Usage of financial services, (3) Quality of the financial products and services (Global Partnership for Financial Inclusion, 2022). The path towards financial inclusion is complex, and the achievement is generally measured by the number of opened and used bank accounts (Raimi et al., 2021). Sustainable and inclusive growth and economic development are possible through financial inclusion that is enabled by digital technologies.

## 3. Research Questions/Aims of the research

The aim of this research is to explore the relationship between financial inclusion, poverty, sustainable development, and digitalization.

Therefore, this research strives to answer the following research questions:

- To what extent financial inclusion can be achieved in the Balkan countries?
- How can digitalization enable financial inclusion in the Balkan countries?
- How can financial inclusion contribute to sustainable development?

## 4. Research Methods

Based on the research questions and objective, the following model will be investigated by using fixed-effect Driscoll-Kraay estimation. Driscoll-Kraay Standard errors are robust to disturbances being heteroscedastic, auto correlated and cross-sectionally dependent (Hoechle, 2007).

By considering the possibility of heterogeneity, we estimated the results by applying the fixed effect model. It incorporates the sampled country's specific policies and practices of the transport model and shows the effects in the intercept coefficient. "$\alpha_{1j}$". The intercept of one country differs from the other country but is time-invariant. The following equation (A) captures the countries' specific effects by takings the different economic, geological and social characteristics. Robust-standard-errors-type approach, which accounts for heteroskedasticity, autocorrelation, and cross-sectional dependence (Hoechle, 2007), is used in this study. The empirical strategy on which estimation is based (Driscoll & Kraay, 1998) takes averages of the product between independent variables and the residuals, and then uses these values in a weighted HAC estimator to produce standard errors that have the added feature of being robust against cross-sectional dependence (Hoechle, 2007; Vogelsang, 2012). Ramoutar (2017) also affirms in his empirical analysis that the advantage of fixed effects with Driscoll and Kraay standard errors is that the problems of heteroscedasticity, autocorrelation, and cross-sectional dependence are all corrected. Similar estimation methodology were also used by Arogundade et al. (2022) and Thompson (2011).

Furthermore, feasible generalized least squares are used as robust model estimation.

$$LNPOV_{it} = \alpha_o + \alpha_1 LNFDI_{it} + \alpha_2 LNREM_{it} + \alpha_3 LNFI_{it} + \alpha_4 LNGDPGR_{it} + \alpha_5 LNINTUSER_{it+} \alpha_6 LNT_{it} + \alpha_7 LNGOB_{it} + \alpha_8 PSI\text{-}PG_{it} + \alpha_9 VAI\text{-}PG_{it} + \alpha_{10} GEI\text{-}EG_{it} + \alpha_{11} RQI\text{-}EG_{it} + \alpha_{12} COC\text{-}IG_{it} + \alpha_{13} ROL\text{-}IG_{it} + e_{it}$$

Where POV is Poor population (% of total population), FDI is the foreign direct investment inflow percentage of GDP, REM is the remittance inflow percentage of GDP, T is the total trade percentage of GDP, FI is the Financial inclusion proxied by Automated teller machines (ATMs) (per 100,000 adults), INTUSER is the number of people that have access to internet, GOB is the globalization index, and GDPGR is annual growth rate of GDP. Furthermore, α (where o, 1,2,3…7) are the parameters to be estimated, i are the countries (1,2,3,….N) and t are the time (1,2,3,…,T) and eit refer to the error term in above equation 1. The units of each variable and source of data are mentioned in 1. Similarly, all variables were measured by a natural logarithm to attain reliable results, therefore LN refer to natural logarithm. Furthermore, PSI, VAI, GEI, RWI, COC and ROL are the governance index; valued between -2.5 to 2.5. -2.5 refer to weak governance and 2.5 refer to the strong governance.

A panel of data from 9 Balkan countries has been used over the period 1999 and 2019 for investment in the impact of financial inclusion; digitalization on poverty reduction. The sources of variables, description and summary statistics are mentioned in table 1. Furthermore, table 2 reports that there is no multicollinearity among the variables as the coefficient is below 0.800.

**Table 1.** Data sources, Abbreviation, Description & Summary statistics

| Variable | Description | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|---|
| POV | Poor population (% of total population) | 189 | 3.144253 | 0.315807 | 2.324836 | 3.876396 |
| FDI | FDI inflow | 188 | 1.459979 | 0.89803 | -2.63109 | 3.618255 |
| REM | Remittance inflow | 189 | 1.312218 | 1.163328 | -1.74451 | 3.688074 |
| FI | Financial inclusion | 189 | 3.607886 | 0.993122 | -1.36258 | 5.054957 |
| GDPGR | Economic growth | 161 | 1.296646 | 0.562103 | -0.31328 | 2.556514 |
| INTUSER | Internet User | 189 | 3.332989 | 1.209701 | -2.20728 | 4.420165 |
| T | Trade | 189 | 4.490649 | 0.282081 | 3.113071 | 5.082584 |
| GOB | Globalization Index | 189 | 0.694685 | 0.089397 | 0.4758 | 0.8149 |
| PSI | Political stability index | 189 | 0.119259 | 0.57176 | -2.14 | 1.3 |
| VAI | Voice & accountability index | 189 | 0.280476 | 0.384189 | -0.97 | 1.2 |
| GEI | Government effective index | 189 | 0.033704 | 0.500757 | -1.08 | 1.19 |
| RQI | Regulatory quality index | 189 | 0.220476 | 0.404938 | -0.87 | 1.07 |
| COC | Corruption control index | 189 | -0.15426 | 0.460759 | -1.2 | 1.21 |
| ROL | Role of law index | 189 | -0.06651 | 0.49387 | -1.27 | 1 |

Source: Authors' own conception

**Table 2.** Correlation analysis

| | POV | FDI | REM | FI | GDPGR | INTUSER | T | GOB | PSI | VAI | GEI | RQI | COC | ROL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| POV | 1 | | | | | | | | | | | | | |
| FDI | 0.114 | 1 | | | | | | | | | | | | |
| REM | -0.052 | 0.261 | 1 | | | | | | | | | | | |
| FI | -0.287 | -0.127 | -0.273 | 1 | | | | | | | | | | |
| GDPGR | 0.251 | 0.218 | 0.046 | -0.350 | 1 | | | | | | | | | |
| INTUSER | -0.347 | 0.026 | -0.164 | 0.864 | -0.386 | 1 | | | | | | | | |
| T | -0.116 | -0.027 | -0.041 | 0.585 | -0.216 | 0.494 | 1 | | | | | | | |
| GOB | -0.344 | -0.195 | -0.280 | 0.875 | -0.243 | 0.697 | 0.523 | 1 | | | | | | |
| PSI | -0.182 | -0.076 | -0.406 | 0.562 | -0.126 | 0.315 | 0.494 | 0.541 | 1 | | | | | |
| VAI | -0.058 | -0.200 | -0.531 | 0.508 | 0.009 | 0.230 | 0.390 | 0.593 | 0.779 | 1 | | | | |
| GEI | -0.182 | -0.178 | -0.497 | 0.645 | -0.208 | 0.475 | 0.577 | 0.609 | 0.824 | 0.764 | 1 | | | |
| RQI | -0.269 | -0.215 | -0.447 | 0.706 | -0.155 | 0.476 | 0.512 | 0.783 | 0.704 | 0.736 | 0.767 | 1 | | |
| COC | -0.015 | -0.285 | -0.505 | 0.582 | -0.085 | 0.354 | 0.575 | 0.548 | 0.751 | 0.795 | 0.799 | 0.701 | 1 | |
| ROL | -0.169 | -0.314 | -0.536 | 0.663 | -0.181 | 0.451 | 0.595 | 0.645 | 0.803 | 0.805 | 0.765 | 0.757 | 0.786 | 1 |

Source: Authors' own conception

## 5. Findings

Table 3 reports the impact of financial inclusion and other exogenous variables on poverty according to the fixed-effect Driscoll-Kraay estimation. Column (1) shows that among six exogenous variables, LNREM and LNFI, LNINTUSER and LNGLOB appear reduce poverty population in sample countries. However, LNFDI causes an increase in poverty population. 1 unit increase in LNREM, LNFI, LNINTUSER and LNGLOB decreases poor population by 0.045%, 0.181%, 0.126% and 2.016% respectively. However, 1 unit increase in LNFDI increases poor population by 0.402%. Similarly, in Column (2), by incorporating political governance and other seven exogenous variables, the estimated results indicate consistent signs of LNREM and LNFI, LNINTUSER and LNGLOB; however, the magnitudes of coefficients are slightly different. Similarly, PSI-PG appears to be significant in poor population. 1 unit increase in PSI-PG decreases poor population by 0.258. By incorporating economic governance and institutional governance in estimation, as mentioned in Column (3) and Column (4), the results also indicate consistent sign of LNREM and LNFI, LNINTUSER and LNGLOB as per Column (1) and (2) However COC-IG indication positive association with poor population. 1 unit increase in COC-IG causes increases in poor population by 0.447% and on the other hand, 1 unit increases in ROL-IG decreases poor population by 0.575%. Column (5) presents the impact of six exogenous variables and governance index on poor population reduction. The estimated results reveal that LNREM, LNFI, LNINTUSER LNGLOB and ROL-IG significantly reduce poor population. However, COC-IG appears to increase poor population. The estimated results reveal that 1 unit increase in LNREM, LNFI, LNINTUSER LNGLOB, and ROL-IG reduces poor population by 0.075%, 0.206%, 0.148%, 1.098% and 0.368% respectively.

**Table 3.** Impact of financial inclusion and technology on Poverty (Driscoll-Kraay Estimation)

**Balkan Countries**

| **Fixed effect Driscoll-Kraay Estimation (Static Model Estimation) (MAIN)** | | | | | |
|---|---|---|---|---|---|
| **Variable** | **1** | **2** | **3** | **4** | **5** |
| LNFDI | 0.402<br>(0.259)* | 0.063<br>(0.263)** | 0.043<br>(0.027)** | 0.033<br>(0.252)* | 0.066<br>(0.027)** |
| LNREM | -0.045<br>(0.016)** | -0.056<br>(0.029)* | -0.075<br>(0.034)** | -0.063<br>(0.027)** | -0.075<br>(0.038)* |
| LNFI | -0.181<br>(0.084)** | -0.263<br>(0.049)*** | -0.222<br>(0.072)*** | -0.167<br>(0.080)* | -0.206<br>(0.057)*** |
| LNY | 0.079<br>(0.048) | 0.591<br>(0.044) | 0.081<br>(0.048) | 0.052<br>(0.046) | 0.036<br>(0.048) |
| LNINTUSER | -0.126<br>(0.056)** | -0.164<br>(0.074)** | -0.153<br>(0.063)** | -0.114<br>(0.064)* | -0.148<br>(0.070)** |
| LNT | -0.124<br>(0.070) | -0.217<br>(0.090) | 0.225<br>(0.083) | 0.157<br>(0.079) | 0.0173<br>(0.083) |
| LNGOB | -2.016<br>(1.058)* | -0.028<br>(1.139)** | -1.429<br>(1.200)* | -1.578<br>(1.578)* | -1.098<br>(1.264)** |
| PSI-PG | - | -0.258<br>(0.057)*** | - | - | -0.125<br>(0.080) |
| VAI-PG | - | 0.205<br>(0.421) | - | - | 0.064<br>(0.109) |
| GEI-EG | - | | -0.065<br>(0.079) | - | -0.111<br>(0.058)* |
| RQI-EG | - | | -0.212<br>(0.133) | - | -0.170<br>(0.116) |
| COC-IG | - | | - | 0.482<br>(0.134)*** | 0.551<br>(0.116)*** |
| ROL-IG | - | | - | -0.545<br>(0.096)*** | -0.368<br>(0.103)*** |
| Constant | 3.645<br>(0.385)*** | 3.229<br>(0.587)*** | 2.811<br>(0.755)*** | 3.311<br>(0.642)*** | 2.947<br>(0.845)*** |
| R.Sq | 0.432 | 0.494 | 0.467 | 0.459 | 0.542 |
| Observations | 161 | | | | |
| Groups | 9 | | | | |

**Note: ***p<0.01 ,**p<0.05,*p<0.10. Driscoll-Kraay Standard error are indicated in parenthesis and are robust to disturbances being heteroscedastic, auto correlated and cross-sectionally dependent.**

Source: Authors' own conception

Table 4 reports the impact of financial inclusion and other exogenous variables on poverty according to the FGLS (robust) estimation. Column (1) shows that among six exogenous variables, LNREM, LNFI, LNY, LNINTUSER and LNGLOB appear reduce poverty population in sample countries. However, LNFDI causes an increase in poverty population. 1 unit increase in LNREM, LNFI, LNY, LNINTUSER and LNGLOB decreases poor population by 0.039%, 0.174%, 0.085%, 0.111% and 2.022% respectively. However, 1 unit increase in LNFDI increases poor population by 0.042%. Similarly, in Column (2), by incorporating political governance and other six exogenous variables, the estimated results indicate consistent signs of LNRE, LNFI, LNY, LNINTUSER and LNGLOB; however, the magnitudes of coefficients are slightly different. Similarly, PSI-PG and VAI appears to be significant in poor population. 1 unit increase in PSI-PG and VAI-PG decreases poor population by 0.218% and 0.235% respectively. By incorporating economic governance and institutional governance in estimation, as mentioned in Column (3) and Column (4), the results also indicate consistent sign of LNRE, LNFI, LNY, LNINTUSER and LNGLOB as per Column (1) and (2). However COC-IG indication positive association with poor population. 1 unit increase in COC-IG causes increases in poor population by 0.482% and on the other hand, 1 unit increases in ROL-IG decreases poor population by 0.545%. Column (5) presents the impact of six exogenous variables and governance index on poor population reduction. The estimated results reveal that LNREM, LNFI, LNY, LNINTUSER LNGLOB and ROL-IG significantly reduce poor population. However; COC-IG appears to increase poor population. The estimated results reveal that, 1 unit increase in LNREM, LNFI, LNY, LNINTUSER LNGLOB, and ROL-IG reduces poor population by 0.055%, 0.246%, 0.062%, 0.178% 1.079% and 0.378% respectively. Comparing to the results of fixed effect Driscoll-Kraay Estimation (main analysis) which are mentioned in table 3 with the estimated results FGLS (robustness analysis) in table 4, the results interpretation will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that, LNREM, LNFI, LNINTUSER LNGLOB, and ROL-IG reduces poor population and COC-IG increases poor population.

**Table 4.** Impact of financial inclusion and technology on Poverty (FGLS Estimation)

| | Balkan Countries FGLS (Robust) | | | | |
|---|---|---|---|---|---|
| **Variable** | **1** | **2** | **3** | **4** | **5** |
| LNFDI | 0.042 (0.041)* | 0.125 (0.030)** | 0.043 (0.019) | 0.374 (0.029) | 0.670 (0.031)** |
| LNREM | -0.039 (0.047)** | -0.692 (0.024)** | -0.079 (0.026)*** | -0.043 (0.024)** | -0.055 (0.064)*** |
| LNFI | -0.174 (0.036)*** | -0.025 (0.072)*** | -0.224 (0.047)*** | -0.197 (0.061)** | -0.246 (0.061)*** |
| LNY | -0.085 (0.058)* | -0.051 (0.044)* | -0.086 (0.014)* | -0.022 (0.044)* | 0.062 (0.043)* |
| LNINTUSER | -0.111 (0.011)*** | -0.165 (0.042)*** | -0.159 (0.064)*** | -0.614 (0.039)*** | -0.178 (0.062)*** |
| LNT | 0.169 (0.111) | 0.213 (0.105)* | 0.224 (0.124)** | 0.157 (0.116) | 0.174 (0.126) |
| LNGOB | -2.022 (0.578)*** | -2.219 (0.577)*** | -1.469 (0.607)*** | -1.578 (0.513)*** | -1.079 (0.621)* |
| PSI-PG | - | -0.218 (0.010)*** | - | - | -0.121 (0.047) |
| VAI-PG | - | -0.235 (0.115)* | - | - | 0.041 (0.456) |
| GEI-EG | - | - | -0.065 (0.081) | - | -0.561 (0.162) |
| RQI-EG | - | - | -0.212 (0.112) | - | -0.140 (0.136) |
| COC-IG | - | - | - | 0.482 (0.132)*** | 0.552 (0.145)*** |
| ROL-IG | - | - | - | -0.545 (0.136)*** | -0.378 (0.197)*** |
| Constant | 3.635 (0.770)*** | 3.249 (0.401)*** | 2.471 (0.660)*** | 3.691 (0.566)*** | 2.477 (0.561)*** |
| Observations | 161 | | | | |
| Groups | 9 | | | | |

**Note: ***p<0.01 ,**p<0.05,*p<0.10.**

Source: Authors' own conception

## 6. Discussions

Remittance inflow, financial inclusion, Internet user, globalization and ROL-IG decrease poor people (poverty). The findings of this study reveal that remittance inflow positive reduces poverty by increasing the purchasing power capacity of an individual. Considering the fact that the money received by the immigrant family members positively increases purchasing power, which further reduces poverty. These findings are in line with previous studies (Imai et al., 2014; Ratha, 2013). Similarly, remittance inflow has positive impact on financial development and financial inclusion. Therefore, Financial inclusion also reduces poverty in the Balkan region. A similar effect of financial inclusion was also found by prior studies (Omar & Inaba, 2020). On the other hand, technological advancement increases the business network via globalization, which in long run positively increases individual income and reduces poverty. A similar relationship between poverty and technological advancement has also been uncovered by previous studies (Avais, 2014; You et al., 2020), which reinforce the findings of this study. Likewise, a high level of corruption increases the grabbing hand phenomenon in the Balkan region, which further increases the poverty. Similar findings are also indicated by Justesen & Bjørnskov (2014). Figures 1, 2 and 3 display that poverty decreases by increasing financial inclusion, number of Internet users, and globalization.

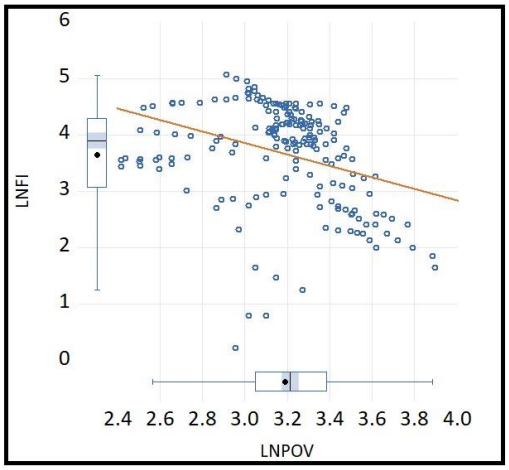



**Figure 1.** Nexus between Poverty and Financial Inclusion
Source: Authors' own conception

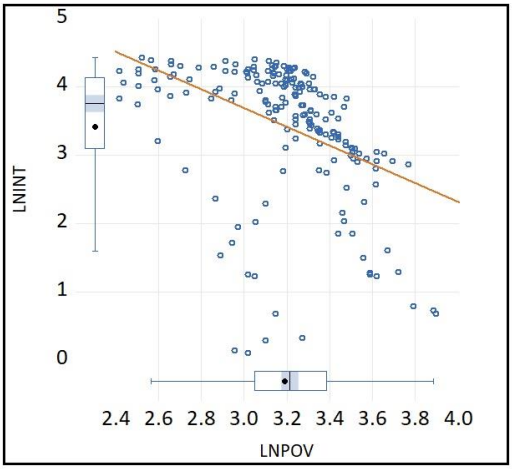



**Figure 2**. Nexus between Poverty and Internet-User
Source: Authors' own conception

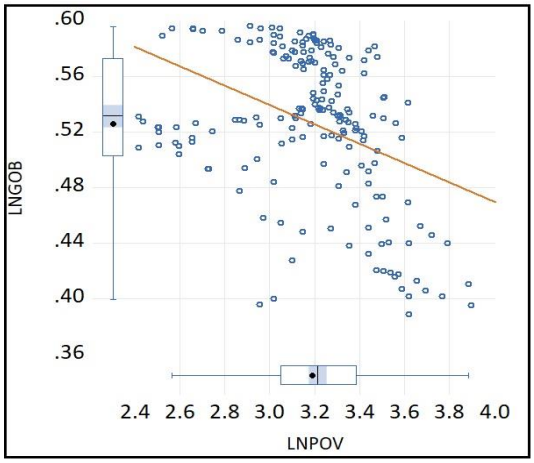



**Figure. 3** Nexus between Poverty and Globalization
Source: Authors' own conception

## 7. Conclusions

The research results demonstrate that FDI inflow wider the income distribution and hence, increases poverty in the Balkan Countries. The research reveals a positive association among the variables. The reason is that FDI provides a 'Hang grab' effect in the Balkan countries due to high corruption, and FDI revolves at the hands of business cartels. Moreover, FDI inflow in the Balkan region is injected into the Low-Tech sector caused of the lack of relevant or controversial policies. Furthermore, FDI usually

focuses on the traditional manufacturing sector in which individual incomes are stagnant.

The results show that remittance inflow, financial inclusion, Internet user, globalization and Rule of law are appeared to be beneficial in poverty reduction in the Balkan regions. This has resulted from the following factors: Remittance inflow increases the basket income for the families, which directly impacts human wellbeing, and therefore, families can invest more in the education and health sector. In addition, remittance inflow tends to increase financial inclusion that further facilitates the advanced technological opportunities for earnings, and hence, tends to reduce poor concentration. Also, remittance inflow along with financial inclusion increases individual self-sustainability for well-being.

Sustainable and inclusive growth and economic development are possible through financial inclusion that is enabled by digital technologies. Our study results conclude that digitalization improves accessibility to financial services and contributes to the accomplishment of Sustainable Development Goals. Remittance inflow, globalization, and compliance with the law (measured as the role of law index) decrease poverty in these countries. However, FDI inflow doesn't appear to be helpful in poverty reduction in the Balkan region.

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