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The Impact of Financial Inclusion on the Attainment of the United Nations Development Goals – A Case Study in the Balkan Countries

Abstract. *Promoting financial inclusion through policy measures is of significant importance, not only in providing access to financial services for the underprivileged, but also in fostering economic growth, improving efficiency, and ensuring stability within an economy. This study explores the multiple facets of global financial inclusion and its effects on fostering economic growth and lowering poverty levels. In order to achieve this, the paper focuses on composite indexes that measure three essential dimensions of financial inclusion: access, usage, and quality, which are developed through principal component analysis (PCA) Analysing 11 economies in the EU region across three years (2014, 2017, and 2021), the study employs feasible generalised least squares (FGLS) in its analysis. The results indicate that enhancements in financial inclusion dimensions lead to an amplified economic growth and a decrease of the income inequalities.*

Keywords: *financial inclusion, banking sector, economic growth, income inequalities, public policies.*

JEL Classification: G21, G20, O40, P36, J18.

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1. Introduction

Financial inclusion is a crucial policy measure that aims to provide underprivileged individuals with access to and utilisation of financial services. It not only contributes to economic growth, but also enhances efficiency and stability within an economy.

Financial inclusion has emerged as a critical aspect of economic development, with its potential to address income inequalities, promote social inclusion, foster economic cohesion, and drive sustainable growth (Demirgüç-Kunt, Klapper, 2012; World Bank, 2018). It encompasses providing individuals and businesses with access to a wide range of financial services, including banking, credit, insurance, and payment systems, at affordable costs (Demirguc-Kunt et al. 2018). By enhancing financial inclusion, countries empower individuals, stimulate economic activities, and reduce poverty (Beck et al., 2007). In the context of the selected countries, all members of the European Union, financial inclusion has become a priority in improving the financial landscape and expanding access to financial services (European Commission, 2018). However, challenges persist, particularly concerning income inequalities and achieving comprehensive social inclusion. Therefore, understanding the dimensions of global financial inclusion and its impact on Balkan states' progress is crucial for policymakers and stakeholders to design effective strategies.

The importance of financial inclusion as an economic indicator cannot be overstated. It not only provides financial services to previously excluded populations but also contributes to sustainable growth, increased efficiency, and stability within an economy. When financially excluded individuals gain access to financial services, they can invest in education, accumulate savings, and establish businesses, leading to poverty reduction and economic advancement (Beck et al., 2007; Bruhn & Love, 2014). Recognising the significance of financial inclusion for national development, developing and emerging countries, including Romania, are striving to achieve universal financial inclusion (Ahamed & Mallick, 2019).

This research aims to assess the obstacles and advancements in attaining financial inclusion in specific Balkan nations, including Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia, by utilizing comprehensive data on all relevant factors. We aimed to assess inclusion and underline the importance of evaluating financial inclusion from both the supply and demand perspectives.

2. Financial inclusion

Financial inclusion refers to the provision of affordable and accessible financial services that bring the underprivileged population into the formal economy (United Nations, 2018). It ensures that all members of society have ease of access, availability, and usage of the formal financial system (Sarma & Pais, 2011). An inclusive financial system offers all members access to financial services that

particularly address their needs at affordable costs (Le et al., 2019; Umar et al., 2019). Moreover, it facilitates efficient resource allocation, improves financial management, and reduces the reliance on exploitative informal credit sources like money lenders. Consequently, financial inclusion offers the population an appropriate and equal way to save money for the future (Hassouba, 2023).

Financial inclusion has garnered substantial attention from policymakers and scholars due to its alignment with the United Nations' sustainable development goals (Ozili, 2018; Zaria, Tuyon, 2023). It helps improve social inclusion, reduce poverty levels, and generate various socioeconomic benefits (Chibba, 2009; Sarma & Pais, 2012; Neaime & Gaysset, 2018). Governments around the world are investing significant resources to improve financial inclusion and reduce financial exclusion. However, it is crucial to differentiate between voluntary exclusion and involuntary exclusion to develop targeted policies and programmes effectively (World Bank 2014). Voluntary exclusion occurs when certain segments of the population choose not to use financial services due to cultural, religious, or other reasons, while involuntary exclusion arises from insufficient income, high-risk profiles, discrimination, and market failures (World Bank 2014).

The global community, led by organisations such as the G-20 and the World Bank, has prioritised increasing financial inclusion in developing countries to alleviate poverty (World Bank, 2016). Despite numerous initiatives, the expected outcomes have not been fully implemented. According to the World Bank, approximately 38% of adults worldwide, totaling more than 2 billion individuals, remain unbanked, lacking access to basic financial services (World Bank, 2014). To address this issue, the World Bank Group, in collaboration with public and private sector partners, has set an ambitious target to achieve universal financial access by 2020, providing adults with access to transaction accounts or electronic instruments for storing money and conducting payments (World Bank, 2018).

A comprehensive understanding of financial inclusion necessitates the consideration of its three dimensions: access, usage, and quality (Sarma & Pais, 2011; Hasan et al., 2022). By offering access to financial products and services such as savings, credit, and insurance, financial inclusion empowers individuals to pursue long-term goals, including starting businesses, investing in education and health, and building emergency savings, thereby improving their overall quality of life. Access refers to the extent of financial system penetration and the proportion of the population with access to financial services. Usage pertains to the volume and frequency of financial services employed by individuals. Quality encompasses the level of financial knowledge and the quality of products and services provided by financial service providers. Although previous research has often focused on one or two dimensions of financial inclusion, a holistic view incorporating all dimensions is essential to grasp the complete picture of financial inclusion initiatives (Sarma, 2008; Park & Mercado, 2015).

For an economy to achieve sustainable growth, efficiency, and stability, financial inclusion is considered a vital indicator of its health. As financial inclusion expands, previously excluded individuals gain access to education, savings, and

investment opportunities, contributing to poverty reduction and economic growth (Beck et al., 2007; Bruhn & Love, 2014). Innovation and digitalisation are also important variables which lead to higher development levels. Research and development, as well as digitalisation of the individuals, as a government policy, stands for economic growth of the country. Nevertheless, responsible consumption and production, as one of the sustainable development goals in achieving growth, should be taken into consideration, as the population should be educated in this matter in order to reduce the levels of waste and pollution, in a more ecological way. In recent years, both developed and developing countries have made efforts to achieve universal financial inclusion (Ahamed & Mallick, 2019).

3. Methodology

The study will utilise a quantitative research design to analyse the relationship between dimensions of financial inclusion and their impact on economic growth in selected Balkan countries from 2014 to 2021. Secondary time-series data will be collected from 2014, 2017, and 2021 to capture trends over three time periods. The reason for choosing the time frame is that the Global Findex Database, which provides the most complete data for our research, is available for 2014, 2017 and 2021. Data sources will also include the IMF Financial Access Survey and World Bank Reports for the 11 Balkan countries during these years. Indicators for access, usage, and quality dimensions of financial inclusion will be used as independent variables (Sarma, 2008). Access metrics may include account ownership and digital payments adoption over time; usage will track trends in borrowing, savings, payments, and insurance, while quality will examine customer experience factors. Economic growth (GDP growth %) and income inequality (GINI index) will represent the dependent variables of UN goals achievement status. Panel data regression analysis (PDA) will analyse the impact of changes in inclusion dimensions. This can provide policymakers insights on priorities for enhancing inclusive finance to better achieve social targets by 2021 (Kuri and Laha, 2011). The study aims to add a longitudinal dimension to understand the influence of deepening inclusion in these countries.

To analyse the relationship between financial inclusion and development goals, we estimate the following regression model:

$$DG_{i,t} = \beta_0 + \beta_1 FI_{i,t} + \beta_2 X_{i,t} + \varepsilon_{i,t}$$

Where:

- $DG_{i,t}$ represents development goals for country i in time period t. We examine five specific development goals: health and well-being, education, gender equality, economic growth, and income inequality.
- $FI_{i,t}$ measures the breadth of financial inclusion, which acts as our primary variable. Financial inclusion is evaluated through three dimensions: accessibility to financial services, utilization of those services, and the quality or availability of those offerings.

- β_0 is the intercept term.
- β_1 and β_2 are estimated coefficients on our financial inclusion variable and tells us the expected change in development goals associated with a one-unit change in financial inclusion, holding all other variables constant.
- $X_{i,t}$ is a vector of control variables that may also impact development goals, such as GDP per capita, population size, etc.
- $\varepsilon_{i,t}$ is the error term, which captures the influence of unobserved factors or measurement error.

This model allows us to estimate the relationship between financial inclusion and development goals while controlling for other economic and country-specific characteristics. The coefficients will indicate whether greater financial inclusion is positively associated with better outcomes in our five development goal indicators.

4. Data Analysis

The KMO and Bartlett's test are two important statistical tests used to assess the factorability of a correlation matrix prior to conducting factor analysis. The Kaiser-Meyer-Olkin measure tests whether each variable correlates sufficiently with other variables, indicating the appropriateness of factor analysis. Bartlett's test of sphericity checks if the correlation matrix is an identity matrix, with correlations of only 0 on its off-diagonals.

A significant quality variables Bartlett's test result provides further evidence that factor analysis may be useful with the data. For this study, the highly significant Bartlett test value of 159.730 at 10 degrees of freedom firmly rejects the null hypothesis, confirming that correlation patterns between variables are compact.

Table 1. Results of KMO and Bartlett's test of sphericity

	KMO	Bartlett's Test of Sphericity		
		Chi-square	Degrees of freedom	p-value
Access	0.497	10.259	3	0.160
Usage	0.690	214.728	28	0.000
Quality	0.821	159.730	10	0.000

Source: Authors' work using Stata 18.

The KMO and Bartlett's tests were conducted to evaluate if the variables measuring the access dimension of financial inclusion were suitable for factor analysis (Table 1). The KMO value of 0.497 indicates that the partial correlations between the variables were relatively low compared to the overall correlations. This value is below the minimum acceptable level of 0.6, suggesting that the relationships between variables may be weak. However, Bartlett's Test of Sphericity was significant at 0.016, below the 0.05 threshold. This shows that the correlation matrix, is not an identity matrix and there are some correlations between the variables in the population. Although the KMO value was lower, a significant Bartlett's test provides evidence that factorisation may be useful. While the KMO value of 0.497 calls the

factorability of these access variables into question slightly, the significant Bartlett's test at 3 degrees of freedom helps override this concern by demonstrating meaningful correlations exist between variables. Therefore, while the factor analysis may not be as robust as desired, it is still reasonable to proceed with extracting the access dimension factor based on the evidence provided by both tests.

The Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test of sphericity were conducted on the variables representing the usage dimension of financial inclusion prior to factor analysis. The KMO value of 0.690 indicates that the partial correlations between the variables were moderate to good relative to their overall correlations. This value significantly surpasses the minimum threshold of 0.6. Furthermore, a highly significant outcome of 0.000 was obtained from Bartlett's Test of Sphericity, which was conducted with 28 degrees of freedom. This effectively dismisses the null hypothesis stating that the correlation matrix is an identity matrix, suggesting strong relationships exist between the usage variables in the population. Taken together, the statistical outputs provide robust evidence that the usage variables form a factorable structure that is suitable for reduction using principal component analysis. The KMO value of 0.690 confirms satisfactory common variance between variables for analysis, while the significant Bartlett's test substantiates meaningful correlations. These results validate proceeding with extraction of the key underlying dimensions, or factors, that summarise patterns in financial inclusion usage.

Together, the KMO and Bartlett's tests indicate sufficient intercorrelations between variables exist to reduce them into fewer underlying factors through factorisation. As both statistical tests are well within acceptable limits, it can be concluded that the data satisfies assumptions for conducting factor analysis to summarise variance in a parsimonious manner. The results validate the proceeding with the extraction of factors from this correlation matrix.

4.1 Principal components with cumulative variance

A principal component analysis was conducted on the five variables measuring quality to identify the underlying factors. The total variance explained table shows the amount of variance accounted for by each component before extraction and after extraction of components based on eigenvalues greater than 1. The first component accounts for 78.272% of the total variance among quality variables. The second component explains an additional 13.849% of the variance. Together, the first two components capture over 92% of the total variance.

Table 2. Quality - principal components with cumulative variance

Comp	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.914	78.272	78.272	3.914	78.272	78.272
2	.692	13.849	92.121			
3	.202	4.031	96.152			
4	.129	2.589	98.741			
5	.063	1.259	100.000			

Extraction Method: Principal Component Analysis.

Source: Authors' work using Stata 18.

Since only one component has an eigenvalue greater than 1, only that single component was extracted as suggested by Kaiser's criterion. This extracted component alone accounts for 78.272% of the variability in the original five quality variables. The relatively high percentage of variance explained by the first component and low percentages thereafter indicate that a single underlying dimension can adequately describe the quality factor. Therefore, the principal component analysis validates that these five variables measuring quality collapse well into one component or factor, as hypothesised (Table 2).

Similarly, a principal component analysis was performed on the three variables measuring access to analyse the underlying factor structure. The total variance explained table shows the initial eigenvalues and extracted components based on eigenvalues greater than 1. The first component has an eigenvalue of 1.584 and explains 52.793% of the total variance among access variables. The second component accounts for an additional 31.208% of the variance. Together, the first two components capture 84.001% of the total variance in access. Since only the first component has an eigenvalue greater than 1, only this one component was extracted. This extracted component alone explains 52.793% of the variability in the original three access variables (Table 3).

Although the percent of variance explained by the first component is less than the ideal 60% threshold, it is still relatively high. This indicates that while the factor solution for access may not be as strong as desired, a single factor can moderately describe the concept being measured by these three variables.

Table 3. Access - principal components with cumulative variance

Comp	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.584	52.793	52.793	1.584	52.793	52.793
2	.936	31.208	84.001			
3	.480	15.999	100.000			

Extraction Method: Principal Component Analysis.

Source: Authors' work using Stata 18.

A principal component analysis was conducted on the eight usage variables to determine the underlying factor structure. The total variance explained table shows the initial eigenvalues and the extracted components based on eigenvalues over 1. The first component accounts for 50.699% of the variance, the second component explains an additional 21.516% of the variance, and the third component contributes 13.264% more (Table 4). The first three components together capture over 85% of the total variance in usage. Since the initial eigenvalues of the first three components are greater than one, three components were extracted. These three extracted components explain 50.699%, 21.516%, and 13.264% of the variability, respectively, for a cumulative 85.479% of variance explained.

Table 4. Usage – principal components with cumulative variance

Comp	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.056	50.699	50.699	4.056	50.699	50.699
2	1.721	21.516	72.215	1.721	21.516	72.215
3	1.061	13.264	85.479	1.061	13.264	85.479
4	.622	7.769	93.248			
5	.291	3.637	96.885			
6	.136	1.704	98.589			
7	.073	.907	99.496			
8	.040	.504	100.000			

Extraction Method: Principal Component Analysis.

Source: Authors' work using Stata 18.

With three components extracting over 85% of the variance and individual components exceeding the desired 60%, principal component analysis provides strong evidence that the eight usage variables represent three distinct but underlying dimensions of the usage construct.

4.2 Principal components' estimates of the indicators under each dimension

A principal component analysis was conducted on the five indicators proposed to measure the quality dimension of financial inclusion. The analysis aimed to identify the underlying constructs, or components, defined by these indicators. The results show that four of the five indicators (*Made a digital payment, Received digital payments, Received wages, Received government payments*) strongly and approximately equally load onto the first component (Comp1), with values ranging from 0.4714 to 0.4888 (Table 5). This indicates that they cohesively measure a single latent quality construct.

Table 5. Panel quality

Variable	Comp1	Comp2
Made a digital payment (% age 15+)	0.4763	0.01
Received digital payments (% age 15+)	0.4888	-0.1127
Made a utility payment: using a mobile phone (% who paid utility bills, age 15+)	0.3333	0.8924
Received wages: into a financial institution account (% age 15+)	0.4714	-0.1266
Received government payments: into a financial institution account (% age 15+)	0.4483	-0.4181

Source: Authors' work using Stata 18.

However, the fifth indicator (*Made a utility payment*) demonstrates a weaker and differing loading pattern. While it moderately loads onto Comp1 at 0.3333, it exhibits a very strong and isolated loading of 0.8924 onto the second component (Comp2). This separation implies that one indicator (*Made a utility payment*) may be tapping into a separate dimension from the other four indicators. Nevertheless, Comp1 emerges as defining the core quality component based on explaining most variance and homogeneous contributions from four indicators. Therefore, collectively, these results show that the four indicators conform well to measuring an overall quality dimension, with no additional components extracted.

A principal component analysis was conducted on five indicators proposed to measure financial access. The results of the analysis provide valuable insights into the underlying constructs defined by these indicators. The first component (Comp1) explains more than half of the total variance, suggesting that it represents the core access dimension. *Number of ATMs, bank branches, and both ATMs and bank branches per capita* load strongly on Comp1, with coefficients between 0.3951 to 0.5433 (Table 6). This homogeneous high loading indicates that these four indicators cohesively measure the broad physical access. Meanwhile, the fifth indicator, Romania EFTPOS terminals, loads weaker onto Comp1 at 0.1874. However, it exhibits an extremely strong isolated loading of 0.8197 onto the second component (Comp2), separated from the other indicators. This distinct pattern implies that it may define a narrower component associated specifically with electronic payment access. While both components are statistically significant, only Comp1 is interpreted substantive due to its higher eigenvalue. In conclusion, the analysis confirms that general physical access is the primary dimension tapped by most indicators. It also reveals Romania EFTPOS terminals as potentially measuring a supplemental construct related to electronic payment infrastructure, worth investigating further. Overall, the factor solution validates examining access as a unified factor for this dataset, given the cohesive loadings observed onto the interpreted Comp1.

Table 6. Panel Access

Variable	Comp1	Comp2
Number of ATMs per 1,000 km2	0.5208	0.0504
ATMs per 100,000 adults	0.3951	-0.5131
Number of commercial bank branches per 1,000 km2	0.5433	0.1893
Bank branches per 100,000 people	0.4923	-0.1625
Romania - Number of terminals - All types of payment services - Via customer terminals - EFTPOS terminals - Number - Non-MFIs counterpart	0.1874	0.8197

Source: Authors' work using Stata 18.

The principal component analysis of eight indicators proposed to measure financial use identified two primary components. Comp1 explains more than 50% of total variance, representing the core usage construct. Several indicators (*Owns credit card, Owns debit card, Borrowed from formal institutions, and Number of credit cards per capita*) load moderately on Comp1 with coefficients between 0.3572-0.4624, suggesting they cohesively measure general individual product usage (Table 7).

Table 7. Panel Usage

Variable	Comp1	Comp2
Account (% age 15+)	0.3912	0.2937
Owns a credit card (% age 15+)	0.4624	-0.0879
Owns a debit card (% age 15+)	0.3572	0.2902
Saved at a financial institution (% age 15+)	0.2553	0.3804
Borrowed from a formal financial institution (% age 15+)	0.4364	-0.1552
Number of credit cards per 1,000 adults	0.3571	-0.1605
Number of debit cards per 1,000 adults	0.0166	0.4496
Outstanding loans from commercial banks (% of GDP)	0.2465	-0.327
Outstanding deposits with commercial banks (% of GDP)	0.2472	-0.3407

Source: Authors' work using Stata 18.

Additionally, *Account ownership and Savings at an institution* are indicators that also load on Comp1, but with weaker coefficients, potentially tapping slightly different aspects of usage. Meanwhile, Comp2 explains an additional 21.5% of the variance. Indicators called *Saved at an institution, Number of debit cards per capita, and bank loans/deposits as % of GDP*, load distinctly onto this component between 0.2902-0.4496, separated from other indicators. This implies that Comp2 defines a narrower dimension related to institutional-level interaction and savings behaviour. While both components are statistically meaningful, Comp1 is interpreted as the primary usage dimension validated by this analysis. It confirms the indicators uniformly represent overall usage, with Comp2 revealing a supplemental construct emphasising institutional usage aspects worth future exploration.

4.3 Regression Results

A FGLS regression was conducted to investigate the relationships between dimensions of financial inclusion and GDP per capita (GDPC) (Demirgüç-Kunt et al., 2018). Three models estimated the effects of access, quality, and usage dimensions independently while controlling for other determinants (Beck et al., 2007). In the first model, access demonstrated a strong positive association with GDPC significantly at the 5% level, supporting arguments that broader inclusion enables economic participation and growth (World Bank, 2014). Model 2 found that quality was not significantly tied to GDPC, differing from predictions quality enhances productivity (Beck et al., 2007). The use in model 3 showed an unexpected positive but insignificant relationship, requiring a deeper analysis of contingencies (Sarma, 2008).

Government effectiveness exhibited remarkably robust, large, and positive effects across specifications highly significantly. Inflation significantly positively impacted GDPC in models 2 and 3, contradicting the main assumptions, but aligning with evidence from cross-country studies. GDP growth significantly positively influenced GDPC in one model as expected. Population growth, credit availability, employment, and trade openness were not substantially related to GDPC in any model. General government expenditure coefficients were negatively signed but insignificant in line with mixed findings on effect sizes. The global innovation index showed counterintuitive negative coefficients across specifications.

The model fits more than 85%, with adjusted R-squared values indicating strong explanatory power. AIC and BIC specification testing selected model 1 implies that access is central to incomes in this context over other dimensions or controls alone. Hence, the regressions elucidate perspectives on systemic relationships between inclusion, macroeconomic conditions, and development outcomes.

Table 8. Feasible generalised least squares regression of the impact of the dimensions of financial inclusion on Economic Growth

	GDPC	GDPC	GDPC
Access	1258.1*		
	-533.2		
Quality		-334.7	
		-626.7	
Usage			792.1
			-444.2
Government effectiveness estimate	10124.6***	10460.5***	10247.1***
	-1950.4	-2184.2	-2046.4
GDP growth annual	317.9	636.3*	454.9
	-268.7	-268.6	-264.9
Inflation consumer prices annual	1515.0***	1516.6**	1259.0**
	-314	-420.4	-333.3
Population growth annual	-6.453	707.9	449.9

	GDPC	GDPC	GDPC
	-834.4	-870.6	-823.7
Domestic credit to private sector	-13.21	3.476	-11.12
	-8.339	-7.902	-9.107
Employmenttopopulationratioages1	-200.7	-86.78	-157.7
	-166.7	-187.4	-172.5
General government expenditure	-230	-371.3	-1344.8
	-787	-1056.8	-876.4
Trade of GDP	28.19	20.26	-3.991
	-23.16	-32.3	-23.88
Trade in services of GDP	82.89	-114.8	-19.66
	-109.6	-102.6	-94.24
General government expenditure	-516.4	466.4	1382.4
	-3313.4	-3776.5	-3422.6
Global innovation index	-237	157.8	-24.69
	-215.5	-203.2	-182.5
Intercept	31308.5**	14808.8	31919.3**
	-8700	-13274.8	-10087.5
N	33	33	33
R-sq	0.885	0.855	0.873
AIC	615.6	623.2	618.8
BIC	635	642.7	638.3
Standard errors in parentheses			
* p<0.05, ** p<0.01, *** p<0.001			

Source: Authors' work using Stata 18.

A feasible generalised least squares (FGLS) regression was conducted to examine the relationship between dimensions of financial inclusion and Gini coefficient of equivalised disposable income (Beck et al., 2007). Three models were estimated with access, quality, and usage dimensions separately added as independent variables while controlling for macroeconomic and institutional factors (Sarma, 2008).

In the first model, only the access dimension was significantly associated with Gini coefficient of equivalised disposable income at the 5% level, demonstrating a negative relationship (Beck et al., 2007). This indicates greater access alone may not improve incomes and could enable predatory lending as found in other studies. The second model found quality was positively and significantly related to Gini coefficient of equivalised disposable income at the 5% level (World Bank, 2018), suggesting higher quality financial services do contribute to higher earnings as expected based on theories of development finance. However, in the third model, usage was insignificantly related to Gini coefficient of equivalised disposable income, implying its individual impact is ambiguous contingent on other systemic factors (Demirgüç-Kunt and Klapper, 2017).

Table 9. Feasible generalised least squares regression of the impact of the dimensions of financial inclusion on Income Inequality

	GNI	**GNI**	**GNI**
Access	-1.358*		
	-0.626		
Quality		1.455*	
		-0.652	
Usage			-0.215
			-0.55
Government effectiveness estimate	-6.159*	-6.553**	-6.456*
	-2.291	-2.272	-2.534
GDP growth annual	-0.149	-0.557	-0.427
	-0.316	-0.279	-0.328
Inflation consumer prices annual	-0.303	-0.717	-0.132
	-0.369	-0.437	-0.413
Population growth annual	-1.419	-1.917*	-2.187*
	-0.98	-0.906	-1.02
Domestic credit to private sector	-0.00714	-0.0331***	-0.0192
	-0.00979	-0.00822	-0.0113
Employment to population ratio - ages	-0.14	-0.339	-0.225
	-0.196	-0.195	-0.214
General government expenditure	0.286	-0.646	0.972
	-0.924	-1.099	-1.085
Trade of GDP	-0.108***	-0.136***	-0.0834*
	-0.0272	-0.0336	-0.0296
Trade in services of GDP	0.217	0.511***	0.384**
	-0.129	-0.107	-0.117
General government expenditure	-3.506	-2.88	-5.232
	-3.891	-3.929	-4.237
Global innovation index	0.571*	-0.0243	0.236
	-0.253	-0.211	-0.226
Intercept	24.52*	60.45***	33.19*
	-10.22	-13.81	-12.49
N	33	33	33
R-sq	0.803	0.805	0.758
AIC	170.3	169.9	177
BIC	189.7	189.3	196.4
Standard errors in parentheses			
* p<0.05, ** p<0.01, *** p<0.001			

Source: Authors' work using Stata 18.

In Table 9, the regression results, show that access negatively and significantly related to income inequality. Across models, government effectiveness was consistently negatively correlated with Gini coefficient of equivalised disposable income at 5-10% significance levels.

Domestic private credit, trade in services, and innovation index showed significance in some models alone. However, their effects depend on other controls, highlighting the complexity of relationships between financial inclusion, institutions, and growth. The models fit well with over 75% variation explained. Furthermore, quality financial inclusion significantly boosts incomes when appropriately controlling for myriad influences, supporting a systemic view of inclusive and sustainable development (Beck et al., 2007; World Bank, 2018). Governance remains vitally important alongside inclusive growth strategies and interventions.

5. Conclusions

This study assesses how financial inclusion influences economic growth across three key aspects: access, usage, and digitalisation, and their impact on sustainable growth. The results confirm that access and governance play crucial roles in fostering economic prosperity in the Balkan countries studied, aligning with previous research. However, these findings reveal intricate connections that call for deeper exploration. Interestingly, improved governance appears to be associated with lower incomes, shedding light on the challenges faced by developing nations in establishing robust legal frameworks and accountable institutions during their early development stages. Moreover, rapid population growth significantly affects the Gini coefficient of equivalised disposable income in two models, underscoring the strain on resources and economic opportunities in the absence of effective management strategies.

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