Towards Sustainable Economic Development Via Financial Inclusion

- A Study Case of Algeria

ZEMRI Bouazza Elamine *

Research Laboratory POLDEVA, University of Tlemcen - Algeria

bouazzaelamine.zemri@univ-tlemcen.dz

KHETIB Sidi Mohamed

Research Laboratory POLDEVA, University of Tlemcen - Algeria

khetib.s@yahoo.com

Received: 08/10/2022 Accepted: 29/01/2023 Published: 07/06/2023

Abstract:

This study aims to analyze the relationship between financial inclusion and sustainable economic development in Algeria based on annual data from 2007 to 2017. Our applied research is based on ordinary least squares method (OLS), an appropriate standard model is found and has been shown to be efficient for short-term forecasting. We relied on a multiple linear regression model , using independent variables representing financial inclusion (loans and total loans, number of bank branches, investment) and dependent variable representing sustainable economic development (GPD/capita), The result showed that there is a direct relationship between the indicators of financial inclusion and sustainable economic development, and increasing financial inclusion is the most important pillars of good economic performance and sustainable economic development.

Keywords: sustainable economic development; financial inclusion; Algeria; multiple linear regression.

Jel Classification Codes: C32, Q01, Q11.

* Corresponding author.

1. Introduction:

Sustainable economic development is a concern for many countries, bodies and international organizations, so most governments have begun to draw strategies aimed at searching for new sources of funding to improve growth rates and sustainable development, with the aim of developing education and health mechanisms, alleviating poverty rates and building a knowledge society as an entry point for the development of the economy on the Stable and continuous foundations that lead to social and political stability for peoples.

In light of the growing global economic crises in recent years and the deterioration of funding sources, interest in financial inclusion has topped the agendas in international forums, as experiences and studies indicate the close relationship between increasing the universality of financial services and achieving sustainable and comprehensive development. It has been shown that promoting financial inclusion contributes to combating poverty and its reduction, as well as enhancing financial stability and achieving financial efficiency for the banking sector, as it is difficult to continue achieving financial stability in a system that includes segments of society that are financially and economically excluded. Under the shadow of the increasing role of financial services in size and importance at the present time, it becomes inaccessible or taking advantage of it is a real obstacle to achieving economic well-being and income generation opportunities, especially for people with limited income.

The problematic: Specific focus of the paper is that the traditional view of sustainable economic development did not take into account, within its successive strategies and policies, the unproductive and inefficient uses of financial and banking services. This paper aims to answer the following question: **Is there an opportunity for sustainable economic development in Algeria through financial inclusion?**

The paper stems from the premise that sustainable economic development cannot be achieved without providing the necessary foundations for its requirements, the most important of which is providing the necessary funding for it through the generalization of financial services to all individuals and institutions desiring them and the promotion of financial inclusion, which leads as a result to achieving financial stability. It is essential to achieve economic development, which depends to a large extent on providing stable sources of financing for its continuity.

This research aims to:

- To identify the implications of each of the financial inclusion and sustainable economic development and the relationship of these concepts with each other to achieve the economic and social goals of sustainable development.
- Statement on the importance of sustainable economic development at the global and Algerian levels.
- Learn more about Algeria's sustainable economic development requirements .

The importance of the research lies in the state's need to achieve efficiency in the use of financial services and their circulation to the largest number of individuals and institutions towards improving indicators of sustainable development, especially in the field of raising the standard of living, achieving an advanced level of education and health, eliminating poverty, and achieving economic and social development in a balanced and stable manner.

To answer the problem of research and test its hypotheses, we relied on the descriptive and analytical approach Learn about the basics of financial inclusion indicators and sustainable development, and we apply one of the economic measurement techniques represented by Ordinary Least Square (OLS) test to measure the impact of financial inclusion indicators on sustainable economic development in Algeria. The study used annual data by focusing on the recent periods from 2007 to 2017 because the principal banking reforms and star financial inclusion indicators in Algeria were adopted during this period. data were collected from different sources such as official journals, annual reports of the central banks of Algeria .

The study seeks to analyze the evolution of sustainable economic development and financial inclusion in Algeria. For this objective, a comprehensive analysis was conducted, to provide a brief overview of the definition and synopsis on financial inclusion and sustainable economic development. In addition, the study has shed light on the important reforms adopted for Financial inclusion in Algeria that lead to achieving even sustainable economic development.

2. Literature Review:

This section reviews the empirical literature and considers the theoretical framework about the effect of financial inclusion on sustainable economic development.

2.1 Meaning of Sustainable Economic Development:

The foregoing definition of economic development did not take into account the rights of future generations to available resources that extend over the periods of the established development plans. Therefore, a new concept of development has begun to emerge, which is sustainable development that takes into account the economic, environmental and social aspects together, and takes into account both the future and current generations (Emas, 2015,p2). But the development economists view of the concept of sustainability is within the overall framework or the framework of macro-management (McNeill, 2004,p29). The World Bank and the International Monetary Fund refer to sustainable development or permanent growth as an increase in GPD income that can be maintained away from the effects of inflation or balance of payments problems (Soubbotina, 2004,p12). The definition of the World Bank and the International Monetary Fund for the concept of sustainable development seems different and far from the concerns of environmentalists and conservatives. On the contrary,

there is a perception that World Bank policies and procedures favour unsustainable operations (Freestone, 2012,P17).

While some presented another concept of sustainable development that did not differ much from the previous concepts, which means development that meets the requirements of the present without harming the natural environment in order not to disturb the ability of future generations not to meet their needs. Proceeding from the aforementioned propositions, which resulted in some ideas and concepts, and crystallized a set of ideas that dealt with sustainable development in some detail. It can be said that sustainable development: Is a development based on the integration between economic development and social affairs, taking into account the protection of the surrounding environment, in addition to addressing Seriously to the needs of society at present thought compromising the welfare and quality of life for future generations.

The general objective goal of sustainable development (SD) is the long-term stability of the economy and environment (Barua, 2020,p102); This can only be achieved by integrating and considering economic, environmental, and social concerns throughout the decision-making process. The definition of sustainable development that is used by the UN is Development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Abad-Segura et al., 2019,p54).

Characteristics of sustainable development are:

- Continuity: It is what is required by investment and generation of high income, we can invest part of it in order to conduct renewal, replacement and resource maintenance.
- Regulating the use of natural resources: It is intended by renewable and non-renewable resources, which guarantee the rights of future generations.
- Achieving environment balance: Preserving the environment in a way that guarantees the renewal of natural life is the controlling criterion for sustainable development, with the production of renewable resources, and the legal and fair use of non-renewable resources.

Sustainable development is based on a long-term approach that takes into account the inextricable nature of the environmental, social, and economic dimensions of development activities.

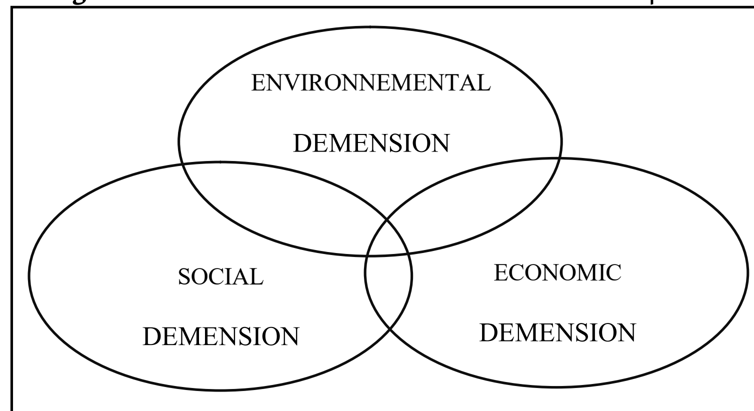
Fig N°1 indicates the three dimensions of sustainable development (Environmental, Social, Economic) which:

- Environmental responsibility: the ability to use natural resources without undermining the equilibrium and integrity of ecosystems, reducing the burden on the environment.

- Economic efficiency: efficiency of economic and technological activities, fostering investment and productivity, economic growth, economic output potential.

- Human development: Equal opportunities for people, including well-being, quality of life and sustainable human development, should liberate individual capabilities and meet human needs to eradicate poverty and improve individual quality of life long-term and social cohesion.

Fig N°1: The three dimensions of sustainable development



Source: Redclift, M. (1991). The multiple dimensions of sustainable development. Geography, 36-42.

2.2 Meaning of Financial Inclusion:

Indeed, the essence of implementing financial inclusion is embedded in its concept. It is the process of ensuring access to appropriate financial products and services needed by all sections of society especially the vulnerable low-income groups at an affordable cost fairly and transparently, by regulated mainstream financial institutions (Macchiavello, 2017,p241). It is important also to note that access to financial services as indicated involves timeliness. Financial inclusion is a way of discouraging savings, loans and holding of money in the informal sector outside the financial system (Claessens, 2006,p211). Financial inclusion is the whole system, programmes and plan that ensure that more people who have access to formal financial services but did not use them, and those who did not have access to formal financial services are brought into the formal financial systems to ensure their continuous, and consistent use of formal financial services over a long period .The Group of Twenty (G20) has defined financial inclusion as promoting the access and use of all segments of society, including marginalized and poor groups, for financial services and products that suit their needs so that they are provided in a fair, transparent and at reasonable costs.Based on the previous concepts that were put forward, it can be said that financial inclusion*:*

- Is the access of everyone to financial services at reasonable prices and good quality, which specifically target the poor and low-income groups in society and meet their financial requirements and is also necessary to provide such services sustainably and continuously to enhance trust between users of financial services and those in charge of them. Overall most of the definitions emphasise access to financial services in an affordable and accessible way as well as the complication of using financial services.

It can be said that financial inclusion has different dimensions, which are access to financial services, the use of financial services, and the quality of financial services (Ratnawati, 2020,p76). Each of these dimensions

has effects on the relationship between financial services providers and their customers, and each has a different role in achieving financial inclusion, and a group of these has been used. The three dimensions in the various efforts made to collect data related to financial inclusion by the World Bank, the International Monetary Fund and the World Alliance for Financial Inclusion (Ozili, 2021,p465). These dimensions can be clarified through the table (Table N°1) indicates the three dimensions of financial inclusion which:

- The first dimension: Access to financial services, usually from the responsibility of the offer side and involves material banking infrastructure, and provides bank branches, ATMs and sales points, or obtaining digital infrastructure (Tuesta et al., 2015,p46). But some obstacles hinder access to these services, for example, are there discriminatory practices between individuals and institutions regarding the level of income and providing service (Macchiavello, 2017), and does customers know the quality of the services provided to them and here is the responsibility dependent on financial education.
- The second dimension: The use of financial services, which is primarily the responsibility of the demand side, which involves the frequency of the interaction of individuals and institutions with financial services .
- The third dimension: The quality of financial services, which is the responsibility of the supply side and is intended to provide high-quality financial products to meet the needs of users (Sarma & Pais, 2011,p616). Quality usually refers to the competitive market between these service providers, and the role of governments and independent bodies is through setting standards that motivate service providers' Finance to make their products easy to use, affordable and presented efficiently and effectively.

Table N°1: The dimensions of financial inclusion

Dimensions	The description
Access	Availability of structured and formal financial services close to customers and affordability
The use	The actual use of financial services and products and the regularity of the frequency period by the user of these services
Quality	Services are well tailored to customer needs and product development to suit all income levels

Source: Prepared by the authors.

2.3 Financial Inclusion and its role in Achieving Sustainable Economic Development:

On September 25 (2015), the United Nations General Assembly adopted the 2030 Agenda for Future Sustainable Development, along with a new set of development goals collectively called the Sustainable Development Goals (Sarma, 2012,p28). They apply to all developed and developing countries alike. The agenda is the culmination of many years of negotiations between the Member States and is endorsed by all 193 members of the General Assembly (Soubbotina, 2004,p33) . United Nations Secretary-General Ban Ki moon noted that the new plan is a promise of leaders to all people everywhere to eradicate poverty by all. Its forms and sustainable development goals include 17 ambitious goals, and while the sustainable development goals do not explicitly target financial inclusion, increasing access to financial services is a major enabling factor for many of

them(Chibba, 2009,p217).But it will be difficult to prove that financial services can have a strong impact on all the sustainable economic development goals adopted by the United Nations General Assembly, including the sustainable development goals that are not covered at all (SDGs 11, 12, 13, 14, 15 and 17), Where it is not clear any direct role of financial services in it.

The first sustainable development goals, which include the eradication of poverty, clearly indicate the importance of access to financial services, and when people are included in the financial system, they are more able to escape poverty through business investments. In India, the efforts of the government to open banks helped in rural areas, rural poverty was reduced by 14-17 percentage points, expenditure on school expenditures increased in Nepalese families who opened bank accounts, and financial inclusion prevents people from falling into poverty by easing the blow of unpaid expenses. Expectedly, increased account ownership among adults would help the Sustainable Development Goals promote gender equality, and access to financial services could also increase spending on health and other necessities. Study in Kenya found that health expenditures increased when access to financial service rises (Barasa et al., 2017,p11). When people are provided with a safe space to keep money, SDG 9 that calls for business innovation can be achieved by expanding access to credit, small business owners often use small loans to increase investments in their small business (Klapper et al., 2016,p12).

3. Materials and method:

In order to investigate effect of financial inclusion on GDP per capita for the case of Algeria, this paper the regression link model proposed which correspond with our objective of examining from a relationship between sustainable economic development and financial inclusion.

3.1 Data: This study adopted data for analysis to cover the period, 2007 – 2017, and was sourced from the Central Bank of Algeria, the Office of National des Statistiques (ONS) and statement of accounts for the relevant years. Because we are interested in finding out whether a relationship exists between financial inclusion and economic growth, we employed the Ordinary Least Square (OLS) test. Were used:

- an independent variable representing financial inclusion (Number of Bank Branches, Number of Bank Branches, Investments).
- the dependent variable is sustainable economic development represented by the GDP per capita.

3.2 Model Estimation: Following a detailed review of the theoretical equation which explains the linear relationship between financial inclusion and sustainable economic development is specified thus:

GDP/capita = F (TLA, NBB, INV.) .... Eqn (1)

This functional relationship can be transformed econometrically to;

$$Y_i = \alpha_0 + \alpha_1 x_{i1} + \alpha_2 x_{i2} + \alpha_3 x_{i3} + \varepsilon \quad \text{.................................. Eqn (2)}$$

$$GDP/capita = \alpha_0 + \alpha_1 TLA + \alpha_2 NBB + \alpha_3 INV + \varepsilon \quad \text{......................... Eqn (3)}$$

Where; GDP/capita = Gross Domestic Product per capita TLA = Total Loans and Advances

NBB = Number of Bank Branches INV = Investments

α_0 = Constant α_1-α_2-α_3 = Coefficients ε = Error Term

Tabl N° 2: Ordinary Least Squares (OLS)

Dependent Variable: GDP

Method: Least Squares

Date: 30/06/22 Time: 20:56

Sample: 2007 2017

Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INV	0.116143	0.791651	0.146709	0.8902
NBB	6.131130	15.81554	0.387664	0.6526
TLA	1.461076	0.518718	2.816707	0.1119
C	-1137.341	11307.64	-0.100581	0.9153

R-squared	0.893709	Mean dependent var	19894.86
Adjusted R-squared	0.873814	S.D. dependent var	24290.88
S.E. of regression	8428.176	Akaike info criterion	21.16031
Sum squared resid	1.26E+07	Schwarz criterion	21.40827
Log likelihood	-226.6634	Hannan-Quinn criter.	21.21872
F-statistic	35.65557	Durbin-Watson stat	1.848329
Prob(F-statistic)	0.000000		

Source: Extracted from Eviews V.10

From the regression result in Table N°2 above, we have our estimated regression equation as:

$$\textbf{GDP/capita} = -11372.341 + 0.116143\,INV + 6.131130\,NBB + 1.461076\,TLA + \varepsilon$$

(0.146709) (0.387664) (2.816707)

The final regression equation that we can derive from the above analysis is given by :

where, ε represents the combined influence on the dependent variable of a large number of independent variables that are not included in the model explicitly. Based on the results it is known that the value of F-count > F-table (35.655> 3.32). This shows that jointly the variables INV, NBB and TLA have an effect on GDP/capita.

3.3 R2 Test: The R2 analysis is performed to measure the amount of the ability to explain the independent variables (INV, NBB, and TLA) to the dependent variable (GDP/capita) in a regression model.

Table **N°3:** R2 Test Result

Model	r	R Square	Adjusted R Square
	0.945361	0.893709	0.873814

Source: Prepared by the authors based on Eviews V.10

The calculation results show that the coefficient of determination (Adj-R2) is 0.873814 or 87.3%. This means that as much as 87.3% of the GDP/capita is affected and explained by INV, NBB and TLA. Meanwhile 12.7% is influenced by other variables.

3.4 Diagnostic Testing: Diagnostic analysis consists of basic tests that check whether the current model meets the basic assumptions of a classical linear regression model. These include tests for residual normality, homoscedasticity, and autocorrelation.

3.4.1 Test for Normality of the Residuals: Classical linear regression models assume that each $\acute{\varepsilon}$ is normally distributed, with mean and covariance of 0, and variance $\sigma 2$. This can be expressed compactly as follows: $\acute{\varepsilon} \sim N(0, \sigma 2)$ To check the normality of the residuals graphically, a histogram was plotted

- H0: Residuals are normally distributed
- H1: Residuals are not normally distributed

The histogram explains that, for the most part, residues are normally distributed.

3.4.2 Test for Autocorrelation: We use the Durbin-Watson test as a test for the existence of autocorrelation and its hypothesis is

- $H_0: \rho = 0$
- $H_1: \rho \neq 0$
- dL=1.61; dU=1.87

We note from the following Table N°2 that the computed DW = 1.848, accept the null hypothesis mean that disturbances are not autocorrelated for a significance level of 5%, which shows that there is no presence of autocorrelation.

-The following hypothesis is formed for the purpose of testing autocorrelation is Breusch- Godfrey test

- H_0: There is no correlation between the residuals
- H_1: Correlation present between the variables

On observing the table 2, since the p- value of the Breusch Godfrey, which is more than the significance level of 5%. Hence, we do not have enough evidence to reject the null hypothesis. Hence, we say that there is no autocorrelation in the model. there is no correlation between the residuals in the model.

2.4.3 Test for Homoscedasticity: We use the Breusch-Pagan-Godfrey Test for heteroscedasticity of errors in regression:

- n = 11
- R2= 0.89
- k = 4 – 1 = 3 (independent variables)
- 0.05 =∝
- LM= NR2 = 11 x 0.89 =9.79

x2 K-1 > LM (k degrees of freedom) Therefore, we have enough evidence to not reject the null hypothesis of homoscedasticity of residuals. So, we conclude that the residuals are homoscedastic.

4. Results and Discussion:

Table **N°4:** Test of Hypotheses Result

Variables	T-Statistic	Prob.Value	Observation	Decision
INV	0.146709	0.8902	p-value>0.05	Accept null hypothesis
NBB	0.387664	0.6526	p-value>0.05	Accept null hypothesis
TLA	2.816707	0.1119	p–value< 0.05	Accept alternative hypothesis

Source: Prepared by the authors based on Eviews V.10

From the results of the table above, it can be seen that :

- **INV:** A p-value higher than 0.05 (p-value > 0.05) This means we retain the null hypothesis and reject the alternative hypothesis. This shows that INV has a significant effect on GDP/capita.
- **NBB:** A p-value higher than 0.05 (p-value > 0.05) This means we retain the null hypothesis and reject the alternative hypothesis. This shows that NBB has a significant effect on GDP/capita.
- **TLA:** A p-value higher than 0.05 (p-value < 0.05) This means we retain the alternative hypothesis and reject the null hypothesis.

Based on the hypothesis testing :

• **Accept H0:** There is a significant relationship between financial inclusion and sustainable economic development in Algeria during the study period.

• **Reject H1:** There is no significant relationship between financial inclusion and sustainable economic development in Algeria during the study period**.**

4.2 Economic explanation: Based on the results of the research and discussion above, it shows that sustainable economic development in Algeria are significantly dependent on the expansion of banking and financial services to the currently financially-excluded class of citizens of the country, as they possess untapped and unexplored valuable potentials that will be of tremendous to the country. By the rule of thumb and assuming every other thing remains equal/constant since the Algerian financial sector is going through a lot of transformation and a low level of financial education, it is expected that total loans and advances, total deposits and the financial inclusion strategy positively contribute to economic development. By opening accounts and mobilizing deposits

many initially excluded poor and active individuals will be included thereby increasing the funds required to be extended to micro and scale entrepreneurs. Again, total loans and advances granted by total loans and advances granted by microfinance banks to micro and scale entrepreneurs also contribute to economic development inance banks in any system, the better it stands to reach out to too many individuals thereby increasing the number of individuals who access financial services.

5. Conclusion:

This study explored the relationship between financial inclusion and sustainable economic development in Algeria between 2007 to 2017, the from the perspective of economic upgrading and diversity. The empirical materials from the study showed a positive and statistically significant relationship between sustainable economic development and financial inclusion in Algeria. our findings confirmed the importance of financial inclusion development for advancing the economy and archiving sustainable economic development and the importance of dimensions of financial inclusion interactions for GDP upgrading. In addition, it is necessary for the Algeria government and public agencies must promote financial inclusion cohesions to the upgrading of economic development .

It can be concluded that in light of the growing global economic crises in recent years and the deterioration of sources of financing, the interest in the financial inclusion of business schedules in international forums may be issued, as experiences and studies indicate the close relationship between increasing the generalization of financial services and achieving sustainable and comprehensive development.

Therefore, the analysis of the main indicators of financial inclusion in Algeria underlines that it is strongly recommended to promote financial inclusion: after assessing the supply and demand of financial services, this study recommends:

- The Algerian authorities need to develop a strategy for financial inclusion and clarify their objectives. Various tools are available, especially in connection with Tools related to new technologies, well-developed payment systems, sound financial infrastructure, appropriate regulations and reliable consumer protection regimes.
- Strategy of sustainable development should by enhancing their financial inclusion production ability and diversified highly efficient services.
- Work to design national financial education strategies, collect data and organize surveys to measure the level of knowledge of the financial sector.
- High-quality financial products which are relevant, appropriate and affordable for the entire adult population, especially the low-income active poor should be designed and timely and seamless make available.

However, this study has some limitations. It examines only the relationship between some components of financial inclusion and economic development sustainable in Algeria; it highlights which components of financial inclusion are similar to lending; the cash and investment windows are small, which provides a good basis for future research to investigate the matter further.

Many opportunities can be achieved economic development sustainability in Algeria but, the issue is, are we going to take this opportunity to make changes?

6. List of references:

1. Abad-Segura, E., Cortés-García, F. J., & Belmonte-Ureña, L. J. (2019). The sustainable approach to corporate social responsibility: A global analysis and future trends. Sustainability, 11 (19), 5382.
2. Barasa, E. W., Maina, T., & Ravishankar, N. (2017). Assessing the impoverishing effects, and factors associated with the incidence of catastrophic health care payments in Kenya. International journal for equity in health, 16 (1), 1-14.
3. Barua, S. (2020). Financing sustainable development goals: A review of challenges and mitigation strategies. Business Strategy & Development, 3 (3), 277-293.
4. Chibba, M. (2009). Financial inclusion, poverty reduction and the millennium development goals. The European Journal of Development Research, 21 (2), 213-230.
5. Claessens, S. (2006). Access to financial services: A review of the issues and public policy objectives. The World Bank Research Observer, 21 (2), 207-240.
6. Emas, R. (2015). The concept of sustainable development: definition and defining principles. Brief for GSDR, 2015, 10.13140.
7. Freestone, D. (2012). The World Bank and Sustainable Development: Legal Essays. Martinus Nijhoff Publishers.
8. Klapper, L., El-Zoghbi, M., & Hess, J. (2016). Achieving the sustainable development goals. The role of financial inclusion. Available online: http://www. ccgap. org. Accessed, 23 (5), 2016.
9. Macchiavello, E. (2017). Microfinance and Financial Inclusion: The challenge of regulating alternative forms of finance. Routledge.
10. McNeill, D. (2004). The concept of sustainable development. Development Studies and Political Ecology in a North South Perspective, 26-46.
11. Ozili, P. K. (2021). Financial inclusion research around the world: A review. Forum for social economics,
12. Ratnawati, K. (2020). The impact of financial inclusion on economic growth, poverty, income inequality, and financial stability in Asia. The Journal of Asian Finance, Economics and Business, 7(10), 73-85.
13. Sarma, M. (2012). Index of Financial Inclusion–A measure of financial sector inclusiveness. Centre for International Trade and Development, School of International Studies Working Paper Jawaharlal Nehru University. Delhi, India.
14. Sarma, M., & Pais, J. (2011). Financial inclusion and development. Journal of international development, 23 (5), 613-628.
15. Soubbotina, T. P. (2004). Beyond economic growth: An introduction to sustainable development. World Bank Publications.
16. Tuesta, D., Sorensen, G., Haring, A., & Camara, N. (2015). Financial inclusion and its determinants: the case of Argentina. Madrid: BBVA Research.