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Financial Inclusion and Monetary Policy: A Review of Literature

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ABSTRACT

We conducted a literature review of some of the most important studies over the last few years (2007-2024) to highlight the main variables used and to emphasize the main findings and practical research directions. The study shows that financial inclusion positively influences monetary policy, leading to the fulfillment of its objectives through the dimensions of access, use and availability of financial products and services. Thus, with an inclusive monetary policy, economic growth can be achieved without generating inflationary potential. Some papers also argue that there is a bidirectional relationship between monetary policy and financial inclusion, as they influence each other.

1. Introduction

Financial inclusion has become a topic of great interest in countries around the world because of the benefits it brings to the economy. It is a way of promoting and facilitating barrier-free use of financial-banking products and services by the population without excluding any citizen, desiring to financially educate the vulnerable, aligning the low-income and unbanked segments of the population to the standards imposed by the central authorities (*Komala and Widodo [2022]*; *Lenka and Bairwa [2016]*).

The inclusion process covers three main dimensions, namely access to a wide range of financial products and services, their availability and their use, and brings in the social dimension, as it is society that dictates the direction of their development, according to their needs. Accessibility refers to the possibility for individuals to use formal financial products and services, availability emphasizes the possibility of accessing them without differences, while use emphasizes the actual use of financial products and services, such as having a bank account or making payments of any kind. However, the notion of inclusion is not limited to financial education, economic development and quality of life, but goes deeper into the financial system, including the quality of digital financial products and services and the degree of security they offer at the point of access by the user to avoid risks.

The role of financial inclusion is to bring society closer to the banking sector as well as to reduce financial gaps. Thus, *Anarfo et al. (2019)*, find that financial inclusion contributes to the effectiveness of monetary policy by providing adequate financing to those in need, while *Mbutor and Uba (2013)* and *Lapukeni (2015)* emphasize inclusion as a central bank objective that limits inflation through consumption and investment as it balances the quantity of money. On the other hand, financial inclusion is found to be higher in developed countries and lower in underdeveloped countries (*Arshad et al. [2021]*; *Oanh [2023]*; *Saraswati et al. [2020]*) correlating with digitization through fintech technologies, which accelerates the payments system and imposes new regulatory policies and transmission channels. Regardless of status, people access and use products and services that meet their needs in a sustainable and responsible way (*Yin et al. [2019]*), but financial inclusion responds differently to shocks, depending on country specifics and population traits, contributing to the development of the financial system and the bankarization of the population.

For individuals, inclusion provides low-cost, transparent access to different financial products and services offered by specific institutions, tailored to their needs, to address inequities and maximize income levels to improve quality of life. For firms, financial inclusion is an important pillar in business development and expansion into other markets, allowing them to invest in their own financial literacy. Managing risks and adapting business strategies to the current economic context is due to financial inclusion and the increasing use of the internet, which solves the problem of information asymmetry. Including financial performance has been improved and sustainable sources of finance have been made more accessible and more permissive from cost perspective while offering security. The Internet is a factor that has greatly increased the availability of

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information and promoted financial products and services, diversifying financing and investment instruments and developing the private sector. As it is businesses that underpin the economy and are responsible for economic growth, the domestic environment has undergone gradual development, with the aim of increasing the level of development of EU countries.

The increased importance in recent times and the economic and financial context has made financial inclusion one of the seven drivers of the seventeen Sustainable Development Goals and the desire to promote its digital dimension, according to the *World Bank Group (2024)*. It considers that the best indicator to measure digital inclusion is having an account with a financial institution, as it allows the easy purchase of any other financial product or service. These and the easy availability of resources in the account help customers to plan their daily expenses and to foresee possible changes in the long term, being predisposed to the possibility of using other products and services in the financial sphere such as insurance, loans, overdraft, especially firms that want to expand their business or invest either in other areas of activity or in expanding existing lines, so as to diversify their portfolio and disperse risks, so that in the event of destabilization, they can quickly recover and maintain their position in the market. In this respect, the *G20 Global Partnership for Financial Inclusion (GPFI)* has set out new principles focused on promoting inclusion from a digital perspective. The way out of poverty is seen by the GPFI as extending access to low-income groups, who can connect from anywhere without significant costs, so that they can receive solutions tailored to their needs, helping them to organize and build confidence in their financial resources.

The changes in the technological sphere have brought about the fourth industrial revolution (*Al-Smadi [2023]*), which has polished the facade of financial services due to the introduction of new skills, improved banking infrastructure, increased data quality, and speed of transmission and realization of payments (*Bilan et al. [2019]*). Improved quality and processing of information provides the possibility for accelerated development of the economy and reduces social inequalities, facilitating monetary policy decisions by central authorities. Financial inclusion is a good way to achieve sustainable economic growth, maintain a low inflation rate, expand employment opportunities (*Komala and Widodo [2022]*), and a complementary objective of monetary policy, which could be considered as an outcome variable of monetary policy (*Anarfo et al. [2019]*), and there is a bidirectional relationship between them. In this way, with the inclusion of inclusion among monetary policy objectives, both inflation containment and growth stimulation would take place (*Lapukeni [2015]*; *Arshad et al. [2021]*).

The main objective of the paper is to synthesize the literature on the impact of financial inclusion on monetary policy. It is organized as follows: section 2 highlights the main issues addressed by other authors in this area and section 3 concludes.

2. Literature review

Financial inclusion is one of the topics that has received particular attention in recent years, due to the importance of the three dimensions on which it is based: availability, accessibility and use of financial products and services (*Sarma, 2008*). Financial development depends mostly on the degree of financial inclusion and financial education, as it fosters digitalization, progress, geographical expansion and alignment with European standards of sustainable and sustainable development.

Surveying the literature, we find a significant number of studies (such as *Lapukeni [2015]*; *Lenka and Bairwa [2016]*; *Anarfo et al. [2019]*; *Arshad et al. [2021]* and *Komala and Widodo [2022]*), which analyze the link between monetary policy and financial inclusion. One of the relevant studies that address this topic is by *Mbutor & Uba (2013)*, who view financial inclusion as an element that "enhances the sensitivity of aggregate demand to interest rates" and, if considered in monetary policy design, can determine the success of monetary policy. The authors analyze the impact of financial inclusion on monetary policy in Nigeria over the period 1980- 2012. The results found that the effectiveness of monetary policy would improve with maximizing financial inclusion. The variables involved had a positive and significant impact on monetary policy, but the number of bank branches was found to be directly proportional to inflation, which would be explained by the profits pursued by credit institutions. Inclusion is seen as regulator of the economy, as it is believed to reduce cash costs and strengthen the financial system, while also defending the strength of the local currency. There is a strong inverse proportionality relationship between the inflation rate and the amount of loans and advances granted by credit institutions, calculated as a percentage of GDP. Financial inclusion can be used as a successful strategy with reliable effects to make monetary policy more effective. The reason for this is quite simple, namely that once there is an increase in lending in the system, inflation is dampened by stimulating investment. The indicator of aggregate customer exposure to rural branches is negatively correlated with inflation and shows that it can help monetary policy, whose main objective is to reduce inflation, to make decisions in a way that is fair and in line with market conditions. Given the unusual relationship between bank branches and inflation, the authors find that branches are inefficiently clustered in unprofitable locations because customers are few. It should also not be overlooked that central public authorities have a key role to play in the actual effectiveness of monetary policy measures, as financial inclusion can give the population confidence in the banking sector, which, through its intermediary role, facilitates the exchange of resources by selling and buying government securities. The limitations of the study are the study of a single economy and the limited applicability to similar countries at present, as the digital dimension has been omitted.

In other studies (such as *Mehrotra and Yetman [2014]*), the relationship between financial inclusion and monetary policy has been considered from a welfare perspective. The model developed based on data collected from the World Bank's survey of 142 economies shows access to loans and saving capacity for the category of households with a high degree of financial inclusion, balancing consumption against income characterized by high income volatility. The data were based on an extensive cross-country setting, which led to the conclusion that monetary policy is optimal when financial inclusion varies positively and in line with output and inflation volatility. Although limited access to financial products and services is characteristic of emerging economies, the authors point to the importance of Central Banks' decision-making autonomy, as this factor most influenced the results of the study and the optimal level of monetary policy. If the monetary policy is efficient and provides the appropriate response to shocks, pursuing price stability, the ratio between fluctuations in output and inflation decreases, providing greater accessibility to financial consumers to the desired products and services by facilitating their use. It is well known from economic theory that inflation and economic growth are the main objectives of the Central Bank, but they cannot be achieved simultaneously, as there is a negative relationship between them, depending on the policy measures adopted, especially through the interest rate channel. Thus, often, inflation is much more pronounced and more necessary to limit, while economic growth falls into the background, which leads to a fall in demand for goods and services, while output starts to fluctuate more and more, tending to fall or remain on an upward trend, but with slow fluctuation. However, with the emergence of the inclusion phenomenon, it has been shown that this difference can be mitigated, helping to regulate the price level in an inclusive way, as it increases the number of consumers and balances the supply-demand balance, who are able to mitigate the negative implications of higher interest rates and keep household welfare at an average level. Consumers are different and respond differently to shocks, therefore the effects are also felt distinctly, which is why the Central Bank needs to analyze the market in detail before taking a decision, the results demonstrating that financial inclusion can be an effective tool in fighting inflation and keeping the economy sustainable. Limitations of the research stem from the unavailability of data and low confidence in the results since the survey is a collection method that does not provide accurate data and can be distorted or manipulated.

Lapukeni (2015) emphasizes the relationship between financial inclusion and monetary policy effectiveness for the state of Malawi over the period 2001-2014, including considering the causal relationship between the two. Inclusion has been defined as a multidimensional concept, which refers to the ability of the entire population, including the financially disadvantaged, to access and use financial products and services equitably and at an affordable price. However, it should be made clear that this financing, which can be made more advantageous through inclusion, is not provided at any price, but under the conditions laid down by law. The main dimensions to which the author refers to measure inclusion are access, financing and the quality of financial products and services. In this way, several characteristics of inclusion that the researcher considers relevant are summarized: its quasi-public good character, by fulfilling the conditions of non-rivalry in consumption and non-excludability in most cases; the condition of achieving the objectives of inclusion for sustainable and equitable growth; maximizing financial transparency and stability, by increasing the degree of participation in the global financial system of the vast majority of the world's population. Among the impact benefits of inclusion, financial system includes combating money laundering, increasing positive externalization and the global financial system, reducing information asymmetry and inefficient intermediation of resources between investors and economists. The contribution with which it stands out in economics and the literature makes its presence felt by creating a different dual view of financial systems by monetary and public authorities, which would perhaps formulate more effective monetary policy solutions. However, the unavailability of data affects the fairness of the results, incomplete capturing of reality may distort the results, as inclusion measurement variables such as mobile phone use for making payments are survey data.

Two years later, *Lenka and Bairwa [2016]* emphasize the importance of financial inclusion for monetary policy through the central role of finance in an economy, likening it to that of the heart for the body. The study is based on a dataset including the South Asian Association for Regional Cooperation (SAARC) countries over the period 2004-2013, utilizing the GLS model and constructing a financial inclusion index that serves the accessibility of financial inclusion in the selected sample. Sustainable development can only be strengthened with a sound financial system that involves raising living standards from the bottom (people in small towns, low-income, primary sector, primary sector, and spending more on food) to high financial inclusion. The resilience over time is provided by the maintenance of a healthy economy, the fuel of which is identified by the monetary policy interest rate, GDP growth and monetary balance. Including the accessibility and use of financial products and services makes it possible to achieve this objective successfully by reducing social inequality and information asymmetry, together with greater transparency of all financial transactions. The results led to a negative relationship between exchange rate, interest rate and financial inclusion, given its geographic, demographic and banking dimension, and the need to engage monetary policy by stabilizing prices with high financial inclusion. It has been shown that financial inclusion is strongly negatively correlated with inflation, which means that it has a significant impact on monetary policy, as with increasing financial accessibility, the inflation rate decreases and stabilizes prices, just as the banks' internal lending rate is inversely proportional to inflation, solving the financial needs of the population in the medium and short term. It confirms the economic theory that the interest rate is inversely proportional to the inflation rate, because a higher monetary policy interest rate means a decrease in supply and demand, as capital is more expensive, and then the demand for goods and services decreases, which ultimately leads to a price equilibrium by narrowing the gap between actual and forecast GDP. The conclusion reached by the authors is that financial sector efficiency and fostering financial inclusion is the responsibility of the government, which has a steering role, as it has been shown that financial inclusion indicators can stabilize the financial system, slow or even combat general price increases by balancing the supply and demand of goods and services in an economy, and support sustainable economic growth. In another perspective, the exchange rate, another objective of monetary policy, has the power to reduce inflation by establishing monetary equilibrium, regulating the supply and demand for money in the money market and the balance of payments.

Elsherif (2019) emphasizes the relationship between financial inclusion and monetary policy transmission in Egypt. He considers inflation as a proxi dependent variable for monetary policy transmission, and uses several indicators for financial inclusion with which he constructs a specific index: the number of commercial bank branches per 100,000 adults, the number of ATMs per 100,000 adults, domestic credit to the private sector (% of GDP), account holders at a financial institution or mobile phone service provider (% of persons aged 15+), and commercial bank depositors per 1,000 adults. The period of analysis was limited to the years 2000-2017 and the model used was VECM and Granger causality. The results of the study demonstrated a positive and significant long-run relationship between financial inclusion and monetary policy. In addition, increased money supply helps monetary policy to be more efficient and leads to monetary equilibrium, while an increase in the interest rate was found to negatively influence the efficiency of monetary policy. The effectiveness of monetary policy is largely influenced by exchange rate shocks and financial inclusion, showing that monetary policy and financial inclusion are bicausal, with the latter considered as a transmission instrument of the former. The author emphasizes the importance of involving the financial authorities in minimizing the gaps between social classes, which is why he considers that financial inclusion should be an objective of monetary policy, which should also be supported by improving access to digital financial services, access to finance for the hard-to-reach areas and adapting monetary policy instruments to the cultural, social and specific characteristics of the population.

Like other studies (*Mbutor and Uba [2013]*; *Evans [2016]*; *Saraswati et al. [2020]*; *Jungo et al., [2022]*), *Anarfo et al. (2019)* emphasize the inverse relationship between inflation and financial inclusion, but as a novelty, they also look at it the other way around, concluding that there is a bicausal relationship between financial inclusion and monetary policy. The two therefore influence each other, which means that on the one hand, public policies of governments in Sub-Saharan African countries need to focus on promoting and increasing financial inclusion, as this increases the effectiveness of monetary policy, and on the other hand, the same governments will need to reduce benchmark interest rates because of the increased inclusion of the population in financial transactions. It is concluded that financial inclusion can be a substitute for monetary policy, as it has important implications on macroeconomic variables such as inflation, GDP growth rate and real exchange rate, but it can also fulfill the same functions as monetary policy. The authors also argue that monetary policy can be an outcome variable of financial inclusion and that efforts should also be directed towards stimulating and facilitating it. The endogeneity of the variables is corrected for by the PVAR model and shows the importance of including the financial variable in the model created, along with the macroeconomic variables influencing monetary policy, for greater effectiveness.

The dynamics of the financial system have undergone significant changes over the last decade, changing the conditions of financial market functioning for both banks and capital market players. Thus, *Mumtaz and Smith (2020)* emphasized the importance of fintech in the monetary policy transmission mechanism. The results showed that pre-fintech and post-fintech periods are not different, whereas the money multiplier and the speed of income transmission have not changed. The fintech component has facilitated access to finance and increased people's use of online, as digital technologies and digital currencies have led to an increase in these services, and thus to a significant increase in the demand for money. Thus, the determinants discovered from the analysis of the two authors are related to cryptocurrencies (Litecoin and Ethereum) and the evolution of digital technologies, but they belong to the category of those for determining the output gap, while GDP, real interest rate, financial development index, inflation and stock indices have enough power over fintech to change its direction of manifestation. In the case of the current context, going through the pandemic, the energy crisis and the Russian-Ukrainian war, inclusion considers both economic theory and the practical dimension by combining classical and unconventional monetary policy instruments to preserve the stability of the financial system.

In contrast to the classical approach in the literature, *Stakic et al. (2021)* analyzes financial inclusion through its participants, taking the view that financial inclusion is properly promoted and understood if both institutional and private stakeholders with a potential benefit are considered. The social dimension of financial inclusion is emphasized as a key factor, both in poverty reduction and for the possible enabling framework for economic growth it can create, in terms of digital financial services and financial education. The authors estimate that with digital finance boosting financial inclusion, the GDP of emerging economies would grow by $3.7 trillion in just a decade and unemployment would be eased by 95 million newly created jobs. With cash lessness, all financial market participants would benefit as individuals and businesses are brought into the financial system, leading to an increase in investment by transferring informal savings into digital accounts, unlocking greater lending potential, with resources being used for business development and the production and use of durable goods. Empirical findings highlighted a strong positive link between economic growth and financial inclusion, internet and mobile phone use, while real interest rates and unemployment were found to be inversely pro-proportional with inclusion. Since the scarcity and high cost of financial services are the main problems faced by the selected sample, it is believed that an increase in per capita GDP will lead to an increase in the degree of banking among citizens, facilitating their access to resources. At the same time, the internet is an important element that attracts young adults, which means that its proper promotion will increase the use of social tools and networks, and ultimately lead to an increase in the availability and use of digital banking products and services, woven on the internet. In terms of unemployment rates, the Western Balkan countries share a common feature, namely the unfair practice of employing people without a work contract, registering them in the system as unemployed, which leads to receiving wages in cash rather than digitally, discouraging inclusion. On the other hand, the financial market is underdeveloped and the supply of financial instruments for investment purposes is very low, due to the preference of households to keep their savings with traditional banks, hence the problem of low transparency and liquidity. Not in lastly, risk aversion and lack of financial education contribute significantly to the lack of digitization and the regression of inclusion, but with programs to promote the benefits of financial resources and the ease of making digital payment transactions, all these drawbacks will improve, and we will see an increase in the living standards of citizens, as well as maximizing the banks' profits, encouraging them to stimulate inclusion and investment.

Monetary policy effectiveness is also addressed by *Arshad et al. (2021)*, who analyze the relationship between monetary policy and financial inclusion for developed and underdeveloped countries. The period of analysis is 2004-2018, with a sample of 30 underdeveloped and 10 developed countries, and the autoregressive vector technique is used. Overall, the two variables do not have a significant impact on each other, but at the sample split level, developed countries with an effective monetary policy are found to increase financial inclusion, which reduces inflation and in turn puts its imprint on the effectiveness of monetary policy. Like other studies (*Sarma [2008]*; *Lapukeni [2015]*; *Saraswati et al. [2020]*; *Arshad et al. [2021]*; *Jungo et al. [2022]*), inclusion is quantified by access, utilization and barriers (availability) of financial products and services and monetary policy by inflation, in agreement with authors *Mbutor and Uba (2013)*; *Lapukeni (2015)*; *Lenka and Bairwa (2016)*; *Anarfo et al. (2019)*; *Komala and Widodo (2022)* and *Oanh (2023)*. They highlight that the reduced form of the autoregressive vector shows a reduction in inflation through higher financial inclusion and conversely, optimal monetary policy maximizes the level of inclusion. On the other hand, in the case of underdeveloped countries, only the relationship between the inflation-inclusion gap is significant, and the larger the gap, the more effective monetary policy will be. In designing regulations to support specific financial inclusion policy, consideration needs to be given to the impediments such as documentation, distance, trust and accessibility of financial services for the measures taken to have the intended effect.

Salisu (2022) looks at financial inclusion and monetary policy in terms of their impact on economic growth. A significant number of developing countries over the period 2010-2020 and a multiple linear regression were used along with the GMM model. The variables included in the model are GDP (to measure economic growth), bank branches, ATMs, exchange rate, inflation rate, interest rate and money supply. The results showed a positive and significant impact of bank branches on economic growth, a positive and insignificant impact of ATMs, a negative and insignificant impact of exchange rate, while interest rate, inflation rate and money supply were found to have significant negative implications on economic growth in the developing countries in the model. Financial inclusion is viewed along its dimensions of utilization, barriers and availability. Utilization of financial products and services is defined as the characteristic of financial services to be used by individuals and is composed of indicators such as owning at least one active financial product that allows storing money, receiving or making payments, having a loan or a savings account with a credit institution. Barriers to the use of financial products and services are included in the model as a dimension of financial inclusion and refer to the bottlenecks faced by the unbanked when trying to use the financial services of a specific institution. It raises the issue of intentional or unintentional financial inclusion, highlighting two categories of the financially excluded: voluntary exclusion (self-exclusion) - individuals do not apply for financial services due to lack of resources, cultural reasons or lack of awareness and understanding of the benefits they offer - and involuntary exclusion - it is the behavior of individuals to participate or not to participate in the financial system due to budgetary constraints. The accessibility of financial products and services is the third dimension considered in measuring financial inclusion and represents the ability of individuals to use the financial and banking sector's finished products. It can foster inclusion, either when access levels are below a certain threshold and respond to the needs of the population through increased availability, or when access is above that threshold, with the increase being driven by financial firms through competition. The conclusion reached is that financial inclusion is directly proportional to economic growth, while monetary policy is inversely proportional, with the authors recommending that central authorities should become more involved in achieving a stable and sound banking system and ensure that commercial banks focus on meeting customer needs by providing financial services that are accessible and available including in disadvantaged areas. The study confirms NBR Governor Mugur Isarescu's underlining of the measures taken to preserve the stability of the financial system, who argues that conventional monetary policy instruments and monetary policy alone are not sufficient in the current context to preserve economic equilibrium, but that a harmonious combination of monetary policy, fiscal and macroeconomic policy is needed so that emerging countries can achieve higher growth an higher economic growth. For the future, it is envisaged to extend the research widely, not just to developing countries, to include a digitization variable in the model, and to create an index of financial inclusion that encompasses all dimensions of financial inclusion and is easier to manipulate in the program.

Saraswati et al. (2022) investigates, in addition to inclusion, the impact of fintech's on monetary policy, considering them as solutions to solve the problem raised by this indicator, by providing access to technology to people that banks had been hard to reach. Emphasizing that these financial technologies will change the structure of national payment systems, the authors use a vector error correction model (VECM) to analyze the implications of inclusion and fintech's on monetary policy in Indonesia from 2009-2018, focusing on the interest rate channel as it has substitution and cost of capital effects. If financial inclusion affects inflation in the short-run and long-run, fintech's make their mark on monetary policy through inflation only in the short-run. In terms of shocks, the reverse is true, as financial inclusion specific imbalances have temporary effects, while fintech imbalances are permanent through the volatility of the inflation rate due to cost of capital and substitution effects. Consequently, the main independent variable, financial inclusion, is a key influencing factor on the consumption behavior of households and firms, which together with investment, are subject to the transmission of the interest rate channel as a monetary policy instrument. The final finding shows that financial inclusion and fintech. They are important for the effectiveness of monetary policy, due to their power to influence consumption and investment, which dictate the interest rate transmission mechanism, requiring optimal formulation of policy and monetary rules and appropriate regulation of fintech.

Komala and Widodo (2022) highlight the link between financial inclusion and monetary policy in Asian countries, emphasizing the causal relationship between the two. The financial inclusion index has been found to have a negative impact on inflation, reducing it in both the long-run and the short-run. On the sample of 9 ASEAN countries, namely Cambodia, Indonesia, Laos, Malaysia, Myanmar, Singapore, Philippines, Thailand, Philippines, Indonesia, Laos, Malaysia, Myanmar, Singapore, Philippines, Thailand and Vietnam, the authors find a negative relationship between the two variables. Thus, the effectiveness of monetary policy increases with financial inclusion due to lower inflation rates as financial products and services are more widely used. A suggestion for strengthening the link between financial inclusion and monetary policy is also offered, with the results highlighting a causal relationship between them in some countries because of the reduction in information asymmetry and increased access to finance encouraged by loose monetary policy. The study also considers the transmission channels of monetary policy through interest rates, concluding that the efficiency of monetary policy, stimulating financial intermediation and limiting money laundering can be mitigated by financial inclusion. Given the lagged effect of monetary policy measures, through interest rate changes, the financially excluded experience them later or not at all, exacerbating the problem of information transmission. Controlling inflation, as a primary objective of the Central Bank, raises the question of causality between financial inclusion and monetary policy, to which the research answers in the affirmative, with measures of financial inclusion influencing the transmission of monetary policy and vice versa. The limitations of this research can be summarized as incomplete data availability and lack of information, generating uncertainty, low efficiency and undermining the confidence of central authorities to introduce financial inclusion in their main objectives.

As expected, digitization is making its mark on the financial system, and this was most noticeable during the period of the coronavirus pandemic, which also cleared the economic environment of unproductive firms or firms that were merely consuming resources without contributing to GDP. With the idea that even people in areas that are hard to reach or reluctant to financial services have had to adapt to the new conditions, a topic increasingly studied by economists and researchers is the influence of digital technologies on financial inclusion. Thus, *Kouladoum et al. (2022)* investigate the link between digital technology and financial inclusion. They used a sample of 43 countries in Sub-Sahara Africa over the period 2004-2019 to estimate a multiple linear regression using the generalized method of moments (GMM). For financial inclusion, they used a composite index, consisting of the number of bank accounts per 100,000 adults, the number of ATM users per 100.000 adults, the number of bank branches, domestic credit to the private sector, the value of deposits and loans, and for digital technology, indicators such as information and communication technology mobile and fixed-line telephone user subscription rate, Internet users, fixed broadband and a composite index of digitization were considered. Financial inclusion determinants such as inflation, GDP and investment were also included in the model foreign direct, considered as control variables. A significant and positive relationship was found between the main variables, demonstrating that the rate of financial inclusion increases as digital technologies increase, the authors considering that financial education is a key factor in promoting and preserving financial stability and inclusive finance, and that financial and technological infrastructure should receive more resources for development. On the other hand, the results confirmed the importance of information and communication technologies for increasing financial inclusion in underdeveloped regions with limited or no access to financial services, with recommendations made in terms of investing in information infrastructure, involving public authorities in the transmission of technological knowledge and encouraging access to banking products and services such as internet or mobile banking to increase citizens' living standards.

Jungo et al. (2022) investigates the relationship between financial inclusion and monetary policy in Sub-Saharan African, Latin American and Caribbean countries. They highlight the access and utilization of financial products and services available through credit, payments, savings and insurance, concluding that there is reverse causality between financial inclusion and monetary policy. It has been shown that the differences are significant across countries at different levels of development, with financial inclusion increasing the effectiveness of monetary policy in lower-developed countries, while in more developed countries, financial inclusion improves the effectiveness of monetary policy, inflation control and access to financial services. Thus, government policies should encourage investment in financial inclusion to maintain and enhance the stability of the economic, financial and monetary system, while also strengthening the resilience of the financial infrastructure.

Other studies (such as *Al-Smadi [2023]*), consider the association of financial inclusion with digital finance, which can be regulated by monetary policy, using a panel of 12 Middle East and North African (MENA) countries, and the three dimensions of financial inclusion: availability, access and use of financial products and services. Using the GMM system method, over the period 2004-2020, a positive significance of digital finance on inclusion is obtained. The same author also brings up the fourth industrial revolution, which maximizes the speed and quality of decision-making, increases the speed of data processing and delivery, bringing new digital skills for people and machines, fostering the emergence of new marketing channels, improved financial products and services tailored to consumer needs. The independent variables used include inflation, income levels, legal protection, internet usage and HDI, and the future recommendation is to include financial education, digital risks in the model and highlight their effects on the financial system.

Oanh (2023) examines the relationship between financial inclusion, financial stability and monetary policy in 58 countries, of which 31 have high financial inclusion and 27 have very low financial inclusion. The period of analysis was 2004-2024, and the method used was PVAR, estimated by a multi linear regression. The results showed that there are differences between the two categories of countries included in the model, with the link between monetary policy, financial inclusion and financial stability being different when the variables are taken two by two. Thus, in less developed countries, the model highlighted a positive relationship between financial stability and financial inclusion, with both indicators having a negative impact on inflation and money supply growth rates. In the case of high-developed countries, a negative relationship between financial stability and financial inclusion, inflation rate and money supply growth rate were found, while inflation rate and money supply growth rate are positively correlated with financial inclusion. From the findings, we conclude that financial inclusion reduces inflation and increases financial stability in low-developed countries, while in high-developed countries, an increase in financial inclusion tends to increase financial instability and accelerate inflation at the same time in the long run. The results also led the author to formulate some solutions for the governments of the two categories of countries to achieve a stable and sustainable financial system. Thus, the governing bodies of developed countries need to limit the excessive use of financial consumption and effectively control the money supply by monitoring and continuously improving lending and loan provisioning standards, along with effective credit assessment. At the same time, financial stability needs to be maintained through low inflation, as well as government involvement in society through financial education programs among vulnerable and low-income populations. Once there is a high degree of awareness of the effects of inflation and the workings of the economy, consumers can make informed and fair decisions about financial products and services, reducing the risk of over-indebtedness and financial instability. For less developed countries, financial inclusion appears to play a key role, as increasing access to financial services for low-income people and SMEs can bring market equilibrium by regulating the supply and demand for money. In this case, stimulating and financing financial inclusion can help households to recover financially faster, minimizing financial damage, and complementing efforts to promote financial stability and inclusion with appropriate macroeconomic policies can avoid crises and mitigate shocks, again requiring low inflation in the medium to long term.

In recent years, technology has evolved spectacularly and has prompted companies to adapt to new conditions, implementing digitization at a higher level in all their activities and services. This is giving rise to what we know today as fintech, a component of financial technology that is bringing more and more benefits by making digital finance more accessible to everyone. This prompted *Mittal et al. (2023)* to investigate the relationship between fintech, financial inclusion and monetary policy efficiency, in the context of the mechanism of wealth creation and transmission through the cost of capital. Thus, a lagged autoregressive regression was used to highlight the relationship between the three main variables, applied on the Indian economy. The results showed that there is a positive relationship between financial inclusion, fintech and inflation, both over a short period of time and over a long period of time, but when the cost of capital variable is included in the model, the relationship between fintech and inflation becomes negative, as technology facilitates access and availability of financial services to people from disadvantaged backgrounds, encouraging financial literacy, which brings the demand and supply of money closer to equilibrium and real inflation close to the level of perceived inflation, bringing the real money balance in balance. It also concluded that there is a two-way causality between wealth and monetary policy efficiency as well as between the bank rate and the interbank rate, and financial inclusion increases inflation by stimulating credit and financial services as it increases demand, and central authorities should take measures to encourage financial inclusion and fintech development to streamline monetary policy and its transmission channels. Being a rather understudied topic, the research does not have a time frame to compare results nor sufficient data to generalize to other economies, but it is a significant contribution to the research, providing the first insights into the power of fintech to influence the affordability and availability of digital financial products and services, and to make monetary policy as effective and correlated to real economy issues as possible.

Bukari et al. (2024) emphasize the relationship between financial inclusion and the multidimensionality of financial poverty, highlighting the vulnerabilities of strategies adapt policies to the needs of society. They form the model along the four dimensions of financial inclusion, namely the formal sphere, the informal sphere, the mobile money sphere and the mixed sphere, which encompasses the other three dimensions. The period analyzed was 2004-2020 and the sample was limited to one Asian country, Vietnam. The results found an increased importance of the conceptualization of financial inclusion on how it influences poverty as well as monetary policy as a tool to stabilize the economy. Also, financial inclusion has a negative and significant relationship with the inflation rate, finding that an increase in income will lead to a decrease in inflation. The use of financial products and services helps households to adopt multi-faceted poverty reduction strategies, with the impact being more pronounced for rural or predominantly female-headed households. Along these lines, the Government should improve financial inclusion as it is an effective method of controlling inflation, which also helps maximize sustainable economic growth by increasing access to digital finance, lowering the poverty rate, protecting consumers and increasing efforts to implement modern financial education.

Garbobiya et al. (2024), investigate how a financial inclusion shock would affect monetary policy objectives and how strong the impact on central policy decisions. The time analyzed is 2004-2020, and the sample is the 15 countries of the Economic Community of West African States (ECOWAS). The dependent variable is the financial inclusion index, and the independent variables are identified as interest rate, GDP, exchange rate, consumer price index and unemployment rate, forming a multiple linear regression estimated by the GMM model. The results found that financial inclusion, on the one hand, leads to local currency appreciation and exchange rate improvement, while on the other hand, it increases interest rates and leads to inflation. However, the dependent variable is found to reduce the effectiveness of monetary policy, and a single policy is recommended in the sub-region under study to align with West African monetary and integration policy. This is due to the reduction in output growth and maximization of inflation by financial inclusion, as well as rising interest rates and employment, which makes the monetary policy decision and its transmission channels delicate and well informed. The authors consider that central banks should apply alternative measures and use unconventional instruments of monetary policy, as financial inclusion lessens the impact of traditional monetary policy instruments on inflation. These could include quantitative easing, targeted lending programs and the anticipated move towards a private sector support zone. Thus, the uncertainty of economic developments and the multidimensionality of financial inclusion arise, and it is not possible to say with certainty that monetary policy is always effective or ineffective, as it depends on the context.

Our research builds on the theoretical underpinnings that make up the dimensions of financial inclusion and aims to identify the implications of financial inclusion for monetary policy. Due to the importance given to financial inclusion in recent years, it has become a central element of central authorities' decisions, encouraged by the rapid development of digital services, which is why banking penetration is one of the key elements of this indicator, along with aspects related to digitalization and the adaptation of financial products and services to customer needs.

3. Conclusions

Monetary policy is one of the key tasks of the central bank, which is why it is imperative that the decisions taken are effective. In terms of efficiency and effectiveness, this can be evidenced by the level of financial inclusion, as it has been shown that greater access to and availability of banking products and services will also lead to a higher level of their use, which implies a more concise reality in setting interest rates, and a level of inflation as close as possible to the level of inflation actually experienced. In this way, it encourages devaluation and even investment, indirectly helping to achieve the secondary objective of monetary policy, namely economic growth. It is a difficult process to implement, time-consuming and financially resource-intensive, but the costs have to be weighed against the long-term benefits, even if the impact seems harmful at the moment, as change will never happen without also hurting some of the parties involved.

Financial inclusion is an important factor in achieving sustainable development goals, which can help reduce poverty and increase a country's development. By increasing access to financial services and diverse ways of financing, individuals can gain access to resources and information, which they can use to increase their standard of living and multiply their existing incomes in the long term. The propensity to consume at the expense of investment is one of the economy's biggest problems, creating imbalances and leading to inflation, but financial inclusion can limit this by raising awareness of long-term needs and maximizing well-being, with short-term satisfaction being an extension of social inconvenience and inequalities. To address these issues, financial education is needed and as many people as possible need to be brought into contact with the banking environment and the products and services it offers, as promotion works differently from person to person. This is why it is necessary for banks to operate hybridly, both online (mobile applications, interactive services, chatbots, attractive websites) and offline (functional ATMs, branches open in as many areas as possible*, information projects in* schools, canvassing in areas with high footfall), in order to meet the needs of as many potential customers as possible and discover their new preferences.

In the current context, technology has had a significant impact on the economic and financial environment and has provided new opportunities for development. Thus, digitization has made it much easier for an unlimited number of people to access financial services, making them much more attractive by lowering acquisition and transaction costs. The fact that the pandemic accelerated this process and forced the implementation of new technologies in the activities of firms, individuals and financial institutions was an opportunity for business expansion and entry into new markets for those businesses that were able to take advantage of this competitive advantage. Thus*,* financial inclusion has gained momentum and has become an increasingly serious objective for companies and banks, being included in the seventeen sustainable development objectives, which means greater involvement of the supervisory and control authorities in this approach, by facilitating the implementation of the other objectives. Monetary policy is aimed at limiting inflation and financial stability, which can be achieved by accessing financial resources and investing them in productive activities and in the development and expansion of new branches of the economy. Entrepreneurship is a defining element of the European Union states, and this aspect helps to achieve several objectives simultaneously, since, in addition to increasing financial inclusion, it is also involved in GDP growth, can help the public sector to solve the taxation problem, paving the way for effective international cooperation with other economies, including developing the capital market and other elements of the financial system.

Given that the economy is constantly changing and that the banking sector is its main pillar of support, financial stability is essential, which means that the competent authorities need to take informed and well-informed decisions. Thus, monetary policy must be very clear about the implications of the decisions taken and conveyed through the main channels, i.e. interest rates and exchange rates, but at the same time these need to be linked to macroeconomic guidelines in order to achieve the desired effect. From this point of view, the EU countries are relatively homogeneous and there is a correlation of objectives, but the weak points are the differences in development and the specific features of each country. However, policy-makers still have an important aspect in implementing certain procedures, and must first pay more attention to the variables of inclusion in order to be able to use the benefits it offers.

Financial inclusion is a complex process, based on access, availability and use of financial products and services, but at its core it is much more complex, involving several economic processes. This has been confirmed by the pandemic context and beyond, where the digital dimension of inclusion has shown its power to maintain financial stability and to support productive factors through adequate fundingand facilities for individuals and businesses to get through the shock more easily. In this way, mobile phone subscriptions andsecure internet servers have allowed people to have quicker and easier control over their accounts, attracting new customers thanks to the lock-down, which is why we also decided to take these indicators to measure inclusion, but indirectly. The fact that the mobile phone has become an indispensable accessory in every family's life has led to an increase in preferences for financial products and services, as it helps customers to manage their finances more efficiently, even coming up with suggestions for solutions to ease the burden of their income, which has attracted them to understand how they work. Thus, consumer goods inflation was apparently countered with greater supply of digital financial services due to higher demand. In this way, the lesson of the pandemic has shifted people towards investing and saving to be prepared in case of other shocks and not affect their standard of living.

Monetary policy and financial inclusion are key factors in maintaining macroeconomic and monetary stability, and inclusion has implications for the design of all a country's policies. The reference interest rate is not the only instrument for economic equilibrium, and in the current circumstances it has become insufficient, as new elements are emerging that need to be considered and new objectives to be achieved, especially in the context of the development of technology, the interest in sustainability and digital progress. In addition, government intervention and fiscal and budgetary policy is another important aspect that should not be neglected, as people have greater confidence in this governing body, and encouraging inclusion and easier access to finance would help the economy to develop, which would please both the political and the economic side financial from the perspective of monetary policy objectives. The fact that we have a negative relationship between loans to firms and outstanding loans to individuals and inflation indicates the recovery power of the banking sector, because the resources made available to customers can be used for investment and less for consumption, which means that the rate of generalized price increases will fall due to the higher demand for money, offset by the supply of goods and services, which would lead the Central Bank to keep the monetary policy rate low.

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