The Banking Sector, the Engine of Inclusive Growth in WAEMU Countries: Decoy or Glimmer?

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Abstract

Sustainable and inclusive growth has been at the heart of countries' development strategies for several decades. This study aims to analyze the role of the banking sector in inclusive growth in the West African Economic and Monetary Union (WAEMU). We constructed a composite inclusive growth indicator based on four pillars integrating growth, poverty, inequalities, human capabilities, and governance. Using the least square dummy variable corrected (LSDVC) method, we then estimate a relationship linking this indicator to variables characterizing the performance of the banking system and its degree of inclusiveness from 1996 to 2017. The results show that inclusive growth is still weak in the WAEMU but is progressing over the years. The performance of the banking sector and its degree of inclusiveness have improved over the period as well. The results from the LSDVC show that the banking sector's role in inclusive growth is not a sham. The banking sector's contribution to inclusive growth in the WAEMU zone involves a drop in lending rates, as well as a drop in cost/income ratios, combined with an increase in the credit granted. Policy recommendations are discussed accordingly.

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Introduction

The rise in inequality worldwide has rekindled the debate on the pace, pattern, and distribution of economic growth. Sub-Saharan Africa (SSA) ranks as the second most unequal region globally in terms of income distribution. Several approaches have been leveraged to reduce poverty and inequality and promote inclusive and sustainable growth in the area. These approaches include but are not limited to fostering trade, enhancing human capital, strengthening institutional quality, implementing sectoral policies (energy, technological development, etc.), developing the financial sector, and promoting financial inclusion.

The financial environment of the West African Economic and Monetary Union (WAEMU) is mainly bank-based. As of December 31, 2020, the banking landscape of the zone consisted of 131 banks and 21 financial institutions. The primary objective of the Central Bank of West African States (BCEAO) monetary policy is to ensure price stability. However, the Central Bank also supports WAEMU's economic policies aimed at sound and sustainable economic growth. The banking sector underwent reforms to accelerate economic growth. All these reforms are in line with financial liberalization as advocated by the financial liberalization theories of McKinnon (1973) and Shaw (1973). Some of these reforms relate to the measures contained in the New Monetary and Credit Policy of October 1989 and supplemented by the 1993 reforms, which aimed, among others, at putting in place a mechanism that would encourage banks to finance the economy by ensuring the quality of the credits distributed, regardless of the beneficiaries, through the establishment of a single key rate, and the reorganization of the BCEAO's rules of intervention. In addition, the BCEAO has reformed the banking system to improve the banking sector's performance in financing the economy and strengthening the supervisory environment for greater efficiency.

These reforms have certainly contributed to the good economic performance recorded in the WAEMU in recent years. Indeed, economic growth in the Union remains one of the strongest on the continent over 2013–2019, at 6.7% on average. However, this high economic performance has not been accompanied by a significant improvement in social indicators and living conditions. Most WAEMU countries have low levels of human development. The average Human Development Index in the zone only shows a slight improvement over the 2000–2019 period, standing at 0.360 in 2000 and 0.484 in 2019. According to the AfDB's African Economic Outlook (2020), only about a third of African countries achieved inclusive growth, reducing poverty and inequality, showing that much is still yet to be done to accelerate inclusive growth.

While the role of the banking sector in financing growth could easily be verified concerning WAEMU's economic performance, the remaining question is whether the role of the banking sector is a decoy or a source of hope for inclusive growth. In other words, what is the impact of the banking sector on inclusive growth in the WAEMU? Therefore, this study aims to assess the effects of the banking system on inclusive growth. Specifically, this study seeks to: (i) describe the evolution of the performance of the WAEMU banking sector and its degree of

inclusiveness; (ii) construct a multidimensional indicator of inclusive growth and analyze the level of inclusive growth in the region as a whole and at a country-specific level; and (iii) measure the effect of the performance of the banking system and its degree of inclusiveness on inclusive growth in the WAEMU.

The rationale for conducting a study on the effects of the banking sector on inclusive growth, particularly in the WAEMU zone, is as follows. First, the financial environment of the zone is mainly bank-based and, given the banking sector's role in affecting economic and social indicators, it appears essential to ascertain the potential impacts of the banking sector on inclusive growth, which actually has both economic and social components. The banking sector may affect the degree to which people's economic opportunities are defined. Second, while the banking sector provides financial assistance to key economic actors, its activities may be non-performing, which may ultimately affect the banks' future strategies and activities, and hence their ability to support socio-economic development.

Although the role of the financial and banking sectors in economic growth and inequality is widely documented in the existing empirical literature, there is no clear understanding of the contribution of the banking sector's performance on inclusive growth. Such analysis has so far hardly been the subject of empirical study, particularly in the case of WAEMU countries. This study contributes to the existing knowledge and literature on two fronts. First, inclusive growth is presented as a multidimensional concept that, according to our understanding, has not yet been addressed in the exclusive case of WAEMU countries. Instead of separately considering economic growth and inequality as in many previous studies, we instead focus on a broader multidimensional measure of inclusive growth and construct a composite indicator of inclusive growth.

The remainder of this article is organized into four sections. In addition to the introduction, the second section presents a review of the literature on the role of the banking sector in inclusive growth. The data and methodology are presented in the third section while the fourth section presents and discusses the results. Finally, the fourth section concludes and provides policy implications.

Literature Review

Definition and Theoretical Background Between the Banking Sector and Inclusive Growth

Conceptualization of Inclusive Growth

International institutions and donors have integrated inclusive growth into their development agendas in line with the Sustainable Development Goals (SDGs). In reviewing the literature on the concept, we retained the definitions of the World Bank, the United Nations Development Programme (UNDP), the Organization of Economic Co-operation and Development (OECD), and the Asian Development Bank (ADB). The World Bank refers to inclusive growth to designate the pace and pattern of economic growth, these concepts being interdependent and

evaluated simultaneously. According to the World Bank's approach, strong economic growth is necessary to reduce absolute poverty. However, for this growth to be sustainable, it must involve a wide range of sectors and large segments of a country's labor force (Ianchovichina & Lundstrom, 2009). This definition implies a direct link between the microeconomic and macroeconomic determinants of growth. From this perspective, inclusive growth emphasizes productive employment, rather than employment per se or income redistribution. Employment growth reduces unemployment and increases income, while productivity growth can increase the level of compensation for wage earners and the self-employed. The World Bank's approach is related to a long-term perspective. It is concerned with sustainable growth, where inclusiveness refers to equal opportunities in access to markets, resources and an unbiased regulatory environment for firms and individuals.

From the UNDP perspective, inclusive growth is seen as both an outcome and a process. On the one hand, it allows everyone to participate in the growth process, by intervening in decision-making and being an actor in growth. On the other hand, inclusive growth provides benefits that are equally shared. Therefore, it implies participation and pooling of benefits (UNDP, 2011).

According to the OECD, economic growth is inclusive "when it creates opportunities for all segments of the population and when the benefits of growth, both economic and non-economic, are redistributed equitably within society" (OECD, 2015).

For the ADB, inclusive growth is at the heart of a global strategy that aims to promote inclusive economic growth for the benefit of its member states. In this framework, inclusive growth is a concept that goes beyond broad-based growth. It is "growth that creates not only new economic opportunities but also ensures equal access to these opportunities for all segments of society, especially the poor" (Ali & Son, 2007). An episode of income growth is considered "inclusive" when it: (i) allows for the participation (and contribution) of all members of society, emphasizing the capacity of the poor and disadvantaged to participate in growth (the "nondiscriminatory" aspect of growth), which implies focusing on the "process" of growth; and (ii) is associated with a decline in inequalities in the non-monetary dimensions of well-being that are particularly important for promoting economic opportunities, including education, health, nutrition and social integration (the "disadvantage-reducing" aspect of inclusive growth), which implies paying particular attention to the "outcomes" of growth.

The African Development Bank (AfDB) also gives central attention to the rate and pattern of growth. High and sustainable long-term economic growth is necessary to reduce poverty, and growth in productive employment is required to reduce inequality (AfDB, 2012). From this perspective, the AfDB defines inclusive growth as "economic growth that translates into greater access to sustainable socio-economic opportunities for more people, regions or countries, while protecting the vulnerable, all within an environment of equity, equal justice and political plurality" (AfDB, 2014). The AfDB distinguishes this concern for pro-poor growth from the amplification of opportunities across society instead of worrying about the welfare of the poor alone.

All these definitions establish that inclusive growth is a strong growth that reduces poverty and inequality and robust growth that offers equal opportunities for access to markets, resources, and an excellent regulatory environment for businesses and individuals. As a process, inclusive growth implies the combination of mental and social changes that sustainably grow an indicator of economic performance and people's well-being.

Determinants and Measurement of Inclusive Growth

Table 1, extracted from Ranieri and Almeida Ramos (2013), and complemented through other sources, summarizes the literature on the determinants of inclusive growth, confirming the multidimensional nature of inclusive growth. The factors that can influence inclusive growth are therefore mainly economic, social, cultural, institutional, and regulatory, and inclusive growth can be based on at least the following five pillars: (i) growth, productive employment, and economic infrastructure;

Table 1 Determinants and measurement of inclusive growth

Authors/Determinants	Poverty	Inequality	Growth	Productive Employment	Capability/Empowerment	Gender Inequality	Access to infrastructure	Social Protection	Participation	Targeted policies	Basic Social Services	Good governance	Opportunity	Barriers for investment	Benefits of growth
Ravallion and Chen (2003)	■														
Bhalla (2007)	■			■	■										
Ianchovichina and Lundstrom (2009)	■		■	■										■	
Habito (2009)	■														
Kakwani and Pernia (2000)		■			■					■					
White and Eterson (2001)		■													
Kakwani et al. (2004)	■	■	■												
Son and Kakwani (2008)	■	■	■												
Kraay (2004)	■														
Ali and Son (2007)		■											■		
Grosse et al. (2008)	■				■										
Son and Kakwani (2008)		■	■												
Klasen (2010)													■		
Rauniyar and Kanbur (2010)	■	■	■	■			■	■	■				■		■
McKinley (2010)	■	■	■	■	■	■	■				■	■			
McKinley (2011)	■	■	■	■	■	■	■				■	■			
Khan et al. (2016)	■	■	■	■	■	■	■				■	■			
Raheem et al. (2018)			■	■											
Oyinlola et al. (2020)			■												

Source: Ranieri and Almeida Ramos (2013), and complemented by authors

(ii) poverty and income equity (including gender); (iii) human capabilities, and (iv) the social protection dimensions of inclusion; (v) governance and institutional quality.

In this paper, we construct a composite indicator to measure inclusive economic growth (called the Multidimensional Inclusive Growth Index (MIGI)) following the work of the ADB (McKinley, 2010) and Khan et al. (2016). The detailed methodology for constructing the indicator is presented in the methodology section.

Relationship Between the Banking Sector and Inclusive Growth: a Theoretical Framework for Analysis

As defined in the "Definition and Theoretical Background Between the Banking Sector and Inclusive Growth" section, inclusive economic growth highlights some of the characteristics of inclusive growth. Strong growth reduces poverty and inequality. More importantly, vigorous growth provides equal opportunities for access to markets, resources, and a proper regulatory environment for firms and individuals. Thus, the banking sector could contribute to inclusive growth on two fronts: the first relates to the link between economic growth and the banking sector, and the second axis is based on the inclusiveness of the financial system.

In their seminal work on finance and growth, Goldsmith (1969) and King and Levine (1993) argued that well-functioning financial systems promote economic growth and reduce poverty by improving information and transaction costs. Thus, the theoretical channels through which financial development can affect poverty are twofold. The first, and most important, is improving the access of the poor to financial services (Zhuang et al., 2009). The second indirect channel is that financial development stimulates economic growth by increasing investment rates. According to Demirguc-Kunt and Levine (2009), who provided theory and evidence on the link between finance and inequality, financial development promotes entrepreneurship. It helps raise sufficient resources to invest in social sectors, which is essential for inclusive growth.

Greenwood and Jovanovic (1990) proposed a theoretical model in which financial intermediaries, including banks, channel funds for profitable investments based on available information to which they have access. On this basis, a high rate of return appears to be a determinant of economic growth. The models of Levine (1991) and Bencivenga and Smith (1991) highlighted the importance of an efficient financial system in increasing the liquidity of investments, allowing for increased trade between agents. Moreover, according to these two authors, financial development allows an increase in the resources allocated to firms while ensuring diversification of productivity risks, thus allowing a heterogeneous and varied profile of investors, including risk-averse investors.

Regarding banking sector efficiency, the theories of Blackburn and Hung (1998) and Harrison et al. (1999) highlighted an efficient banking sector's ability to reduce transaction costs and the spread between lending and deposit rates. According to the

endogenous growth theory, this reduction increases the share of income devoted to savings, which produces strong economic growth.

These theoretical developments provide initial insights into the potential link between the banking sector performance and inclusive growth. Figure 1 presents the theoretical relationship between the banking sector and inclusive economic growth and suggests that an efficient and inclusive banking sector is conducive to inclusive economic growth.

### Empirical Literature on the Banking Sector-Inclusive Growth Relationship

Since inclusive growth is a multidimensional concept, this literature review focuses on the relationship between the banking sector and the components of inclusive growth: economic growth, poverty, inequality, access to employment, etc.

Relationship Between the Banking Sector and Economic Growth

The relationship between the development of the banking system and economic growth has been the core of several research studies. According to Levine (2005), the banking sector can generate economic growth through five (5) main functions: (1) the provision of ex ante information on possible investments and capital allocation; (2) the monitoring of investments following the allocation of credits; (3) trade facilitation, diversification, and risk management; (4) mobilization and pooling of resources deposits; and (5) the facilitation of trade in goods and services. Thus, the development and performance of the banking sector are associated with its ability to perform these functions efficiently.

Focusing on transition countries, Koivu (2002) questioned the role of banking sector efficiency on economic growth for a panel of 25 transition countries from 1993 to 2000. Measuring the qualitative development of the banking sector (banking sector efficiency) by the margin between loan and deposit interest rates, he showed that this variable has a significant negative impact on economic growth. In contrast, credit granted to the private sector does not affect economic growth. The author

Fig. 1 Theoretical relationship between the banking sector and inclusive growth
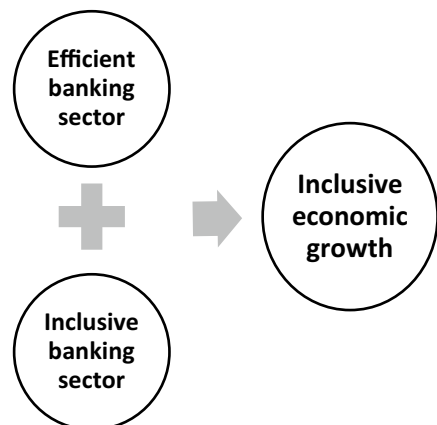
justified such results by the banking crises that transition countries have experienced and the lax fiscal constraints experienced by some of these countries. Thus, credit growth has not always been sustainable and, in some cases, may have led to lower economic growth rates. An essential finding of this study is that banking sector efficiency is a source of economic growth. The main transmission channel for this effect is the reduction in transaction costs, which increases the share of savings in productive investments. The study by Koivu (2002) confirms the theoretical models of Greenwood and Jovanovic (1990), Levine (1991), and Bencivenga and Smith (1991) on the role that the financial markets efficiency play in obtaining productive and quality investments and in increasing economic growth.

The issue of banking sector efficiency and its impact on economic growth has attracted many authors including Ayadi et al. (2013). Considering some northern and southern Mediterranean countries from 1985 to 2009, they showed an inefficiency in allocating credit to the private sector, which is reflected in the negative effect of bank deposits and credit to the private sector on economic growth. Their results highlighted the need for sound financial regulation and the role of institutions in economic growth. Specifically, the bulk of their effect on the efficiency of the banking sector is that the latter is not sufficient to ensure significant economic growth; other parameters that need to be taken into account include better quality of institutions, good regulation and increased supervision.

Petkovski and Kjosevski (2014) considered the case of Central and Eastern European countries and examined the role of banking sector development on economic growth from 1991 to 2011. They measure banking sector development by credit to the private sector, the interest rate spread (the difference between the lending rate and the bank's borrowing rate), and the quasi-money (M2-M1) ratio. They found a positive relationship between quasi-money and economic growth, while a negative relationship was observed for the other variables. The results for credit to the private sector are similar to those of Koivu (2002). Pradhan et al. (2014) also showed the relevance of banking sector development and inflation for economic growth, considering OECD countries from 1960 to 2011.

Shahid et al. (2015) analyzed the banking sector and its effects on Pakistan's economic and financial spheres from 1980 to 2012. Essentially, these authors showed that the level of financial development and banking sector (broad money, domestic credit to the private sector, and domestic credit provided by the banking sector) has a positive and significant impact on economic growth. However, they conclude that bank deposit liabilities do not have a substantial effect on economic growth. Pradhan et al. (2017) found a positive relationship between economic growth and banking sector development in G20 countries. Zeqiraj et al. (2020) analyzed the dynamic impact of banking sector performance on economic growth for a set of 13 Southeast European countries over the 2000–2015 period. Their analysis leads to a positive and significant impact of banking sector performance on economic growth. This result implies that banking sector efficiency is a crucial determinant of economic growth.

In contrast to the majority of existing studies, Tongurai and Vithessonthi (2018) investigated the effects of banking sector development on economic growth and the economy's structure. To this end, they showed that the development of the banking

sector differently affects the development of the agricultural and industrial sectors. While an adverse effect is obtained for the former, the latter's absence is recorded. However, a helpful clarification is that the negative effect of the development of the banking sector on that of the agricultural sector is only observed in countries with a highly developed banking sector.

The above suggests that a developed and efficient banking sector is conducive to economic growth, essential for inclusive growth.

Relationship Between the Banking Sector, Poverty, and Inequality Reduction as Components of Inclusive Growth

While some empirical researches show that the relationships among inequality, poverty, and financial development are not significant (Fowowe & Abidoye, 2012; Kaidi et al., 2019; Seven & Coskun, 2016), the majority of studies show that financial development improves the situation of the poor (Blau, 2018; Keho, 2017; Perez-Moreno, 2011; Sehrawat & Giri, 2016). Focusing on the latter general literature, we find that financial development is likely to reduce inequality, which can lead to a reduction in poverty rates. However, if banking sector development leads to inequality, this is problematic because, according to Berg et al. (2012), inequality leads to weaker and less sustainable growth processes and thus to less poverty reduction. Moreover, inequality weakens the capacity of economic growth to eradicate poverty and aggravate social problems such as unemployment and gender-based violence. The extent to which economic growth reduces poverty depends on how the poor participate in the growth process and share in its results, meaning the way that the growth process resulting from financial development is inclusive. Empowering the poor to participate fully in opportunities increases their contribution to economic growth. Improving and making labor markets work better and more efficiently, removing gender inequality, and increasing financial inclusion are exciting avenues for doing so.

Regarding the relationship between the banking sector and poverty, Iqbal et al. (2020) showed that the banking services relationship with poverty reduction is through the deposit channel rather than the credit channel. The scope of their study lies in the banking sector's role in promoting financial inclusion in Bangladesh, even in the absence of an effective credit channel. The authors highlight that the poor rarely benefit from bank credit. Yet, bank deposit accounts are a powerful means of motivating savings and promoting better financial management, even among the poorest, thereby contributing to poverty reduction, an essential component of inclusive growth.

Considering the case of 48 African countries over the period 1996–2014, Meniago and Asongu (2018) studied the relationship between finance and inequality. These authors define the banking sector's efficiency by the banks' capacity to transform deposits into credit and thus use the ratio of bank credit to bank deposits. This measure of banking efficiency appears to be different from the extent of the spread between loan and deposit interest rates, which many studies use, including that of Koivu

(2002). The private domestic credit of deposit banks as a percentage of GDP measures banking sector activity. The authors showed that these variables had favorable income redistribution effects.

Empirical literature highlights the importance of financial inclusion as a critical factor in the effect of the banking sector on inclusive growth. Financial inclusion can be defined as a set of measures to combat banking and financial exclusion. It encompasses a wide range of financial and non-financial products and services accessible to poor people: account ownership, payment services, use of an account, savings, credit, and financial resilience. Financial inclusion enables individuals to participate in the growth process by improving their access to economic opportunities and expanding their choices, ultimately making them more productive and economic agents more efficient (Zulfiqar et al., 2016).

By making resources more available to economic agents, particularly the disadvantaged on the one hand, and the other, by improving efficiency in the allocation of financial resources through broad access to financial products and services by economic agents, financial inclusion contributes to the reduction of poverty and disparities and thereby promoting inclusive growth. Public access to financial and banking services and products thus offers better financial leverage to people excluded from the system who have the opportunity to carry out income-generating activities. Thus, inclusive financial systems contribute to poverty and disparity reduction and inclusive growth (Kakwani, 2000; Zulfiqar et al., 2016). The availability of financial resources leads to improved access to education, health services, and increased opportunities for self-employment and thus contributes to human development. From the above, financial inclusion, by increasing the availability of resources, contributes to poverty reduction and thus to inclusive growth (Aghion & Bolton, 1997; Banerjee & Newman, 1993; Galor & Zeira, 1993). Finally, an inclusive banking sector is vital for reducing poverty and inequality and thus for inclusive growth.

The above empirical literature emphasizes the gap in the literature on the link between the banking sector and a comprehensive measure of inclusive growth. This gap is addressed in this study.

Data and Methodological Framework

Data

The data used for the econometric estimation covers the period 1996 to 2017 for seven of the eight WAEMU countries: Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo. We excluded Guinea-Bissau in the econometric analysis due to data unavailability for some variables related to the banking sector, and used a balanced panel.

Inclusive growth is measured using a multidimensional inclusive growth index (see the "Methodology for Constructing the Inclusive Growth Indicator" section for more details.

We focus on two measures of banking sector development: performance and inclusiveness. The performance of the banking sector is assessed by its efficiency,

which is an essential component of performance measurement. In this study, the efficiency of the banking sector is measured by the following variables: banks' net interest margin (%), banks' non-interest income to total income (%), and banks' cost/ income ratio (%). The inclusiveness of the banking sector is measured by its ability to provide credit inclusively and equitably. Thus, we use the private credit of deposit money banks to GDP (%) as a proxy. For instance, Sarker et al. (2015) showed that banking sector financing through credits in key sectors accelerates financial inclusion, thereby linking financial inclusion to inclusive growth.

The study also uses control variables that may influence the relationship between inclusive growth and the banking sector. These are inflation, life expectancy at birth, and investment. These variables are presented in Table 2 along with their sources.

Inflation is used in the model as a measure of macroeconomic instability. Indeed, the benefits of inclusive growth are likely to be eroded in an unstable macroeconomic environment. Macroeconomic stability is a prerequisite for inclusive growth. Kumah and Sandy (2013) found that countries with low inflation volatility through appropriate macroeconomic policies achieve significant gains in inclusive economic growth.

According to Hur (2014), policies promoting inclusive growth promote investment in developing countries. Sustainable investment policies can directly or indirectly create jobs and ultimately increase economic growth, making it more inclusive. One possible transmission channel for this effect is the financing of infrastructure projects at the macro level. These projects can enable states to create additional jobs and contribute to poverty reduction.

Since human capital formation is critical in achieving inclusive growth, life expectancy at birth is introduced into the model to measure human capital. The work of Sachs and Warner (1997) and Barro (2001) focused on the role of health in the economic growth process and on measuring human capital using health indicators such as life expectancy. Furthermore, according to Weil (2014), health plays an essential role in measuring a country's development. Indeed, health is a variable that can contribute to getting out of a poverty trap or, on the contrary, getting into one. Several other authors have also used life expectancy at birth as an indicator of human capital (Eggoh et al., 2015; Gyimah-Brempong & Wilson, 2004 among others).

Methodology for Constructing the Inclusive Growth Indicator

In this study, inclusive growth is measured using a multidimensional indicator. This approach allows not to focus on a single dimension of inclusive growth as extensively used in the literature. The method chosen is based on McKinley (2010) and Khan et al. (2016). Our Multidimensional Inclusive Growth Index (MIGI) is constructed on four pillars, each with dimensions. The variables describe each dimension and were selected based on their availability (see Table 3).

The construction of the index is performed in three steps. The first step involves calculating the score associated with each dimension of the inclusive growth pillar.

Table 2 Dictionary of the study variables

Type of variables	Codes	Variable definition	Source
Dependent variable	MIGI	Multidimensional Inclusive Growth Index	Authors' calculation
Performance/efficiency of the banking sector	BNIM	Banks' net interest margin (%)	Global Finance Development Database (GFDD)
	BNITTO	Bank noninterest income to total income (%)	GFDD
	BCTIR	Bank cost to income ratio (%)	GFDD
Inclusiveness of the banking sector	PCBDMB	Private credit by deposit money banks to GDP (%)	GFDD
Control variables	INFLATION	Inflation, average consumer prices (% changes)	International Monetary Fund's World Economic Outlook (WEO) database
	LIFEEXPECTANCY	Life expectancy at birth	World Development Indicators (WDI)
	INVESTMENT	Total investment (% GDP)	WEO

Source: Authors

Let α_i be the weight associated with a variable in a given dimension of D_i. Let d_i be the score associated with this dimension and V_i be the value of the variable associated with the dimension. We obtain:

$$d_i = \sum_i \alpha_i V_i \tag{1}$$

The second step involves calculating the score for each pillar of inclusive growth, D_p:

$$D_p = \sum_k w_k d_i, \quad p = 1, 2, 3, 4 \tag{2}$$

The third step consists of calculating the Inclusive Growth Index, which is obtained by taking the weighted arithmetic mean of the scores for each pillar.

$$MIGI_j = \sum_p W_p D_p \tag{3}$$

The weights W and w are determined a priori from the literature (Khan et al., 2016; McKinley, 2010). The *MIGI* indicator is calculated for each country j and for each year t.

According to McKinley (2010) and Khan et al. (2016), the value of the index varies between 1 and 10. A value between 1 and 3 indicates a low level of inclusive growth; a value between 4 and 7 suggests an average level of inclusive growth, while values between 8 and 10 indicate a high level of inclusive growth.

Descriptive Statistics of the Variables and Stylized Facts on Inclusive Growth and Banking Sector Development

Evolution of Inclusive Growth in WAEMU Countries

Figure 2 presents the MIGI for WAEMU countries. On average, the MIGI ranges between 1.398 and 1.998 for the WAEMU zone, showing a low level of inclusive

Fig. 2 Multidimensional Inclusive Growth Index in the WAEMU countries from 1995 to 2019. Source: Authors' own calculation
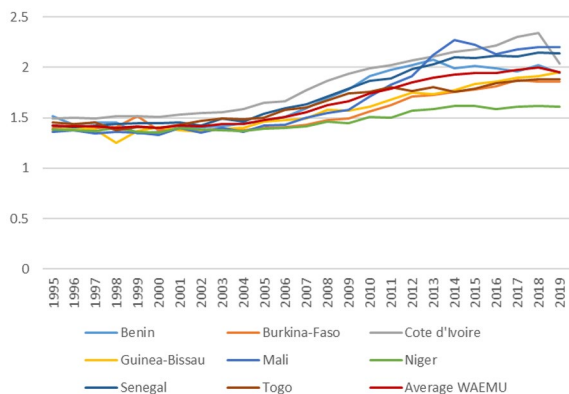
Table 3 Matrix of variables for the Multidimensional Inclusive Growth Index

Pillars	Weights (W)	Dimensions	Weights (w)	Variables	Source of variables	Weights(α_i)
Pillar 1: Economic Growth, Productive Employment, and Economic Infrastructure	50%	Economic growth	20%	Real GDP per capita growth rate	World Development Indicators (WDI)	5.0%
				Industry's share in the total value-added	WDI	5.0%
				Share of services in the total value-added	WDI	5.0%
				Share of agriculture in the total value-added	WDI	5.0%
		Productive employment	15%	Share of employment in industry	WDI	3.75%
				Share of employment in the manufacturing sector	WDI	3.75%
				Share of employment in services	WDI	3.75%
				Share of employment in agriculture	WDI	3.75%
		Economic infrastructure	15%	The proportion of the population with access to electricity	WDI	7.5%
				Number of mobile phone subscribers per 100 people	WDI	7.5%
Pillar 2: Poverty, Income Inequality and General Equity	25%	Poverty	10%	The proportion of the population living below the $1.25 per day per person (international poverty line at 2005 prices)	WDI	5%
				The proportion of the population living below the $2.50 per day per person (international poverty line at 2005 prices)	Global Consumption Dataset (GCD)	5%

Table 3 (continued)

Pillars	Weights (W)	Dimensions	Weights (w)	Variables	Source of variables	Weights(α_i)
		Income inequality	10%	Gini coefficient	Global Income Dataset (GID)	5%
				Share of income of the poorest 60% of the population	GCD	5%
		Gender inequality	5%	Ratio of female to male labor force participation rate (%)	WDI	5%
Pillar 3: Human capabilities	15%	Health	5%	Under-five mortality rate	WDI	2.5%
				Life expectancy at birth	WDI	2.5%
		Education	5%	Net primary school enrolment rate	WDI	5%
		Water and sanitation	5%	People using at least basic drinking water services (% of the population)	WDI	2.5%
				People using at least basic sanitation services (% of the population)	WDI	2.5%
Pillar 4: Governance	10%	Government effectiveness	5%	Government effectiveness	World Governance Indicators (WGI)	5%
		Perception of corruption	5%	Perception of corruption	WGI	5%
Total Weights	**100%**		**100%**			**100%**

Source: Authors based on the literature review and the methodology presented in the "Methodology for Constructing the Inclusive Growth Indicator" section

growth. A similar trend is observed for each of the country. However, progress has been observed throughout the year, suggesting that economic growth becomes more inclusive over time. Some country-specificities are worth mentioning. For instance, Côte d'Ivoire has the highest inclusive level, followed by Senegal, while Niger is the less inclusive country.

Descriptive Statistics and Correlation Matrix

Tables 4 and 5 present some descriptive statistics and the correlation matrix of the variables, thus giving an overview of the variables in terms of distribution, trend or frequency, and correlation. According to Table 4, all variables show a high level of consistency since their mean and median values always range between their minimum and maximum values.

Overall, the correlation between the variables is not high and, therefore, there is no problem of multi-colinearity between the variables (Table 5). Moreover, it should be noted, that the correlation between the current value of the multidimensional index and inclusive growth and its one-period lagged value is relatively high, positive (0.888) and significant at the 1% threshold, suggesting persistence of this variable, which should be taken into account in the econometric analysis.

Banking Sector Performance and Inclusive Growth

Figures 3 and 4 illustrate the descriptive relationship between inclusive growth and banking system performance. The performance of the banking system is measured by the banks' cost/income ratio (%), banks' net interest margin (%), and banks' noninterest income to total income (%). Figures 3 and 4 show a negative relationship between inclusive growth and the cost-to-income ratio of banks, as well as the net interest margin of banks. The decline in banks' cost/income ratio is associated with an increase in the inclusive growth index in the WAEMU (Fig. 3). An increase in banks' cost/income ratio reflects an increase in intermediation costs and a relative reduction in revenue generated. This situation implies that the availability of income for financing the economy decreases, and thus, the volume of credit to the economy declines. Therefore, productive investments decrease, which limits the opportunities for wealth creation and the availability of resources for financing growth and income-generating activities for economic agents. Consequently, a reduction in resources availability limits inclusive growth. A similar observation is made for the banks' net interest margin; a decline in the net interest margin of WAEMU banks is associated with a higher level of inclusive growth (Fig. 4). When banks are making increasingly high net interest margins, this is not related to inclusive growth in the WAEMU. An examination of the banking landscape in the WAEMU region, which is characterized by a large number of foreign banks with a larger combined market share, could explain this fact. Indeed, the possibility for these banks to repatriate part of their profits contributes to reducing the availability of resources in the region to finance the economy. Consequently, a reduction in availability reduces inclusive growth.

Figure 5 presents the correlation between non-interest bank income to total income and inclusive growth. The noninterest bank income to total income has a positive

relationship with inclusive growth in the WAEMU. Higher noninterest bank revenues as a percentage of total income are associated with higher inclusive growth index values. This relationship is consistent with the idea that greater resource availability is conducive to inclusive growth (Galor and Zeira (1993); Banerjee and Newman (1993); Aghion and Bolton (1997)).

Figure 6 illustrates the correlation between inclusive growth as measured by the MIGI and the degree of inclusiveness of the WAEMU banking system. The increase in private credit from deposit banks is associated with higher values of the inclusive growth index, suggesting that the degree of inclusion in the WAEMU banking system is positively correlated with inclusive growth.

Econometric Framework

Unit Root Tests

The first step in the econometric procedure is to study the stochastic properties of the data. To do this, the unit root tests of Levin et al. (2002), Im et al. (2003), and Harris and Tzavalis (1999) are used. These tests have the null hypothesis that all panels contain a unit root. The difference between the three tests lies in the formulation of the alternative hypotheses. Levin et al. (2002) and Harris and Tzavalis (1999) postulate an alternative hypothesis that the panels are stationary, whereas the test of Im et al. (2003) suggests that some panels are stationary. Therefore, it is essential to carry out these tests in a complementary manner to make an accurate decision regarding the presence or absence of a unit root in the series. When the p value associated with the test statistic is below the significance level, there is sufficient statistical evidence against the null hypothesis. Therefore, the series in question is stationary. Otherwise, there is not enough statistical evidence against the null hypothesis and therefore there is a unit root.

Table 4 Descriptive statistics of the variables

Variables	Obs	Mean	Std. dev	Min	Max	Median
MIGI	154	1.632	0.259	1.333	2.305	1.526
BNIM	154	4.816	1.513	1.162	9.756	4.813
BNITTO	154	48.751	10.473	29.053	48.751	48.034
BCTIR	154	63.889	9.214	41.213	63.889	63.065
PCBDMB	154	15.883	6.499	3.719	15.883	15.179
INVESTMENT	154	19.848	7.441	4.039	19.848	19.117
LIFEEXPECTANCY	154	55.627	4.501	46.658	55.627	55.643
INFLATION	154	2.223	2.599	-3.109	2.229	1.764

Source: Authors using data from WDI, GFD, and WEO

Table 5 Correlation matrix of the variables

	MIGI	MIGI (-1)	BNIM	BNITTO	BCTIR	PCBDMB	INVESTMENT	LIFEEXPECTANCY	INFLATION
MIGI	1.000								
MIGI (-1)	0.881***	1.000							
BNIM	−0.204**	−0.259**	1.000						
BNITTO	0.140*	0.182***	−0.761***	1.000					
BCTIR	−0.009	0.075	0.092	0.115	1.000				
PCBDMB	0.331***	0.306***	−0.399***	0.194**	−0.238**	1.000			
INVESTMENT	−0.397***	−0.423***	−0.083	0.073	−0.303***	0.227**	1.000		
LIFEEXPECTANCY	0.119	0.083	−0.330***	0.115	−0.282***	0.613***	0.427***	1.000	
INFLATION	0.032	−0.031	0.153*	−0.112	0.095	−0.201**	−0.176**	−0.203**	1.000

Source: Authors using data from WDI, GFD, and WEO

MIGI Multidimensional Inclusive Growth Index, *BNIM* banks' net interest margin (%), *BNITTO* bank noninterest income to total income ratio (%), *PCBDMB* private credit by deposit money banks to GDP (%), *INFLATION* inflation, average consumer prices (% changes), *LIFEEXPECTANCY* life expectancy at birth, *INVESTMENT* total investment (% GDP)

*** , ** , * Significance at 1%, 5%, and 10% level, respectively

Model Specification and Estimation Method

To establish the specification of the relationship to be estimated, we draw on the work of Rahul et al. (2013) and Khan et al. (2016). The general expression of the equation is as follows:

$$Y_{it} = F(X_{it}, Z_{it}, \varepsilon_{it}) \tag{4}$$

In this study, the following dynamic specification is adopted:

$$Y_{it} = \beta_0 + \beta_1 Y_{i(t-1)} + \beta_2 X_{1it} + \beta_3 X_{1it} * X_{2it} + \beta_4 Z_{it} + \varepsilon_{it} \tag{5}$$

where Y_{it} represents the Multidimensional Inclusive Growth Index of country i ($i = 1, 2, \dots, N$) in year t ($t = 1, 2, \dots T$), X_{1it} measures the performance (efficiency) of the banking sector and X_{2it} its degree of inclusiveness. Z_{it} is a set of control variables, and ε_{it} is the error term of the econometric specification.

β_2 is the unconditional effect of banking sector performance on inclusive growth, and β_3 is the marginal effect (or conditional effect) resulting from the interaction between the performance of the banking sector and its inclusiveness. Therefore, it allows us to capture the presence of both an efficient and inclusive banking system. Ahamed et al. (2021) showed that there is a significant association between financial inclusion and bank efficiency, that is, greater financial inclusion is critical in helping banks reduce the volatility of their deposit-funding share as it provides more stable long-term funds for banks, while simultaneously mitigating the adverse effects of their return volatility. Thus, it is important to consider such an effect on inclusive growth. Such an approach is also justified by the theoretical framework presented in the literature review where an efficient and inclusive banking sector is very likely to promote inclusive growth.

The dynamic specification is chosen to take into account both economic constraints and constraints related to the nature of the inclusive growth measurement variable. Indeed, as announced during the analysis of the correlation between the variables, the correlation between the current value of the MIGI and its value lagged by one period is relatively high. Therefore, the econometric estimation must take into account this result. Furthermore, it is now widely acknowledged that estimating growth equations using panel data requires the inclusion of the initial level of growth to avoid specification bias (see, for example, Eggoh, 2009). The inclusion of this variable allows us to consider conditional convergence between countries. According to the neoclassical growth model, the coefficient of the variable is expected to be negative and statistically significant.

We estimate a dynamic panel model with fixed effects, the inclusion of fixed effects being appropriate when a specific set of individuals is not randomly selected from a larger population, as is the case in this study. Since the sample data are specifically from the WAEMU countries (seven out of eight countries), the fixed effects model is more appropriate for the analysis. It should be noted that the inclusion of the dependent variable lagged by one period in Eq. (5) leads to an endogeneity problem in the model. This issue is a common feature of dynamic panels. Moreover, the sample size is relatively small. Based on all these considerations, we use the LSDVC

(least square dummy variable corrected) method of Bruno (2005a). This method is a widely applied method for short dynamic panels (see for example Bogliacino et al., 2012; Flannery & Hankins, 2013). In general, the LSDVC estimator is first initialized by a dynamic panel estimate and then relies on a recursive bias correction of the fixed-effects estimator.

Three methods are used to perform the initialization: the AH method of Anderson and Hsiao (1982), the AB method of Arellano and Bond (1991) and the BB method of Blundell and Bond (1998). Anderson and Hsiao (1982) proposed relatively simple estimators of instrumental variables that first consist of transforming the model using the first difference to eliminate unobserved individual heterogeneity. Then, the second-order lags of the dependent variable (differentiated or level) are exploited as instruments of the dependent variable lagged by one period. Arellano and Bond (1991) proposed a GMM estimator for the first difference model. Similar to Anderson and Hsiao (1982), this technique also uses internal instruments. However, the difference between the two approaches is that the number of instruments generated by Arellano and Bond is larger in than that generated by Anderson and Hsiao (1982).

On the other hand, Arellano and Bond's (1991) estimator is more efficient than Anderson and Hsiao (1982). Finally, Blundell and Bond (1998) have shown that with very persistent data, the estimators of Anderson and Hsiao (1982) and Arellano and Bond (1991) can be confronted with a significant bias in the case of small samples, owing to the weakness of the instruments. Therefore, these authors propose a system GMM estimator with first difference instruments for the level equation and level instruments for the first difference equation. In this study, we initialize the LSDVC estimator using the approach of Blundell and Bond (1998). This approach also allows us to control for endogeneity bias.

Next, we use three types of recursive bias corrections for the fixed effects estimator. These corrections determine the accuracy of the approximation: $O(1/T)$, $O(1/NT)$, and $O(1/NT^2)$ (See Bruno, 2005a, b for more details on these approximations).

Empirical Results and Discussions

Unit Root Tests Results

Table 6 presents the results of the unit root tests of Harris and Tzavalis (1999), Levin et al. (2002), and Im et al. (2003). The importance of the unit root study lies in the fact that estimating the model on a nonstationary series is likely to lead to spurious regressions. The results reveal that most variables are stationary at level, while the remaining are stationary at first difference, therefore they are integrated of order one (I(1)).

LSDVC Results and Discussions

Tables 7, 8, and 9 present the LSDVC model estimation results. Table 7 shows the effects of the net interest margin of banks and private credit of deposit banks on inclusive growth in the WAEMU countries considered. In most cases, the results suggest an adverse effect of banks' net interest margins on inclusive growth. However, this effect is not statistically significant. Such results could mean that a reduction in banks' net interest margin can promote inclusive growth. However, the current levels of this margin do not yet appear to allow for a significant effect on improving inclusive growth. These results are different from that of Alam et al. (2021) who found a negative but significant relationship between interest margin and economic growth for a set of 20 public sector banks in India from 2009 to 2019. When combined with private credits from deposit banks, our results indicate that the effect of net margins becomes statistically significant at the 10% level. This result suggests that with an efficient (concerning net interest margin activities) and inclusive banking system (for private credit granted), the potential of economic growth to be more inclusive is higher. This result means that banks must conduct their credit activity efficiently by reducing their interest margins to promote inclusive growth in the countries considered. This result is quite interesting as the net interest margin measures the difference between the net interest income a bank generates from credit products and the outgoing interest it pays holders of savings accounts and certificates of deposit. Thus, a reduction in this margin means, all other things being equal, either a reduction in the lending rate or an increase in the interest on the deposits. In the first case, a decrease in interest rates on loans, accompanied by an increase in credit availability, will increase the number of people who can access credit and play an increased role in the production process. Our findings support Alam et al. (2021) who emphasized that from a welfare and monetary policy point of view, low net interest margins are characteristic of a relatively competitive banking sector and of lower funding costs for the non-financial private sector.

The results in Table 8 show that noninterest bank income (as a proportion of total income) does not significantly affect inclusive growth, even when combined with private credit from deposit banks (columns 7–9).

Table 9 shows that the banks' cost-to-income ratio does not have a significant effect on inclusive growth. However, when associated with private credit from deposit banks, the result obtained is negative and significant, suggesting that a decrease in banks' cost/income ratio followed by important credit activity should boost inclusive growth in the WAEMU countries considered.

The results presented are still valid regardless of the bias correction used. In general, these results indicate that the performance of the banking sector alone is not enough to drive inclusive growth. The contribution of WAEMU banks to inclusive growth could be achieved through a decrease in lending rates, as well as a decrease in cost/income ratios (reflecting a reduction in costs or an increase in revenues), combined with an increase in credit. Through efficient management and allocation of credit, inclusive growth gains can be obtained. This highlights the potential of the WAEMU banking system to further strengthen inclusive growth.

Table 6 Unit root tests results

Variables/tests	Levin et al. (2002) Adjusted test statistic	Im et al. (2003) Test statistic W-t-bar	Harris and Tzavalis (1999) Test statistic Rho
Tests on the level variables			
MIGI	−3.960***	−3.157***	0.458***
BNIM	−2.504**	−0.530	0.483**
BNITTO	−1.237	1.200	0.696
BCTIR	−3.583***	−3.051 **	0.366***
PCBDMB	−0.906	−0.611	0.765
LIFEEXPECTANCY	−28.706 ***	−50.099***	0.846
INVESTMENT	−2.763**	−1.018	0.309 ***
INFLATION	−7.214 ***	−7.734 ***	−0.145***
Tests on the first differences of the selected variables with a unit root (« BNITTO» and « PCBMB»)			
D(BNITTO)	−7.533***	−6.984***	−0.115***
D(PCBDMB)	−11.906***	−9.522***	0.334***

The choice of the lags for the different tests is based on the Akaike information criterion (AIC)

MIGI Multidimensional Inclusive Growth Index, *BNIM* banks' net interest margin (%), *BNITTO* bank noninterest income to total income (%), *BCTIR* bank cost to income ratio (%), *PCBDMB* private credit by deposit money banks to GDP (%), *INFLATION* inflation, average consumer prices (% changes), *LIFEEXPECTANCY* life expectancy at birth, *INVESTMENT* total investment (% GDP)

***, **, * represent the significances at 1%, 5%, and 10%, respectively

In all the models estimated, the coefficients of the lagged value of one period of inclusive growth (initial inclusive growth) are positive and statistically significant. This result suggests that, to a large extent, the previous level of inclusion (i.e., the increase in the availability and distribution of opportunities to the population of the WAEMU countries considered) determines the current level of inclusion. The coefficients range between 0.743 and 0.844, suggesting that a good initial base is essential for shared prosperity in the region. It is worth noting that in this case, conditional convergence is not verified in terms of inclusive growth.

Finally, concerning the control variables, human capital, as measured by life expectancy, has a positive but non-significant impact on inclusive growth, even if some significant results are obtained in some cases. The level of inflation does not affect inclusive growth. Hence, the institutional reform, which came into effect on April 1, 2010, and establishing the maintenance of price stability as the primary objective of the BCEAO's monetary policy seems to bear positive fruits. This result reflects the stability of the macroeconomic environment in the area. Thus, the potential gains from inclusive growth would not be dissipated following policies aimed at promoting inclusive growth. This result shows that the current price level monitoring policies implemented by the Central Bank of WAEMU provide an adequate framework for inclusive growth in the seven countries considered. Finally, investment does not have a significant effect on inclusive growth.

Table 7 Effects of banks' net interest margin and private deposit bank lending on inclusive growth

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Bias correction used: $O(1/T)$			Bias correction used: $O(1/NT)$			Bias correction used: $O(1/NT^2)$		
	Dependent variable: MIGI								
MIGI(-1)	0.769***	0.764***	0.746***	0.776***	0.777***	0.764***	0.802***	0.808***	0.793***
	(0.061)	(0.068)	(0.076)	(0.060)	(0.066)	(0.074)	(0.062)	(0.068)	(0.076)
BNIM	−0.102	−0.100	0.775	−0.104	−0.103	0.777	−0.103	−0.109	0.772
	(0.140)	(0.143)	(0.497)	(0.140)	(0.142)	(0.496)	(0.141)	(0.140)	(0.497)
BNIM*PCBDMB			−0.322*			−0.324*			−0.323*
			(0.168)			(0.168)			(0.168)
INVESTMENT	−0.094		−0.053	−0.091		−0.049	−0.083		−0.042
	(0.164)		(0.164)	(0.163)		(0.164)	(0.164)		(0.165)
LIFEEXPECTANCY		0.884	2.927*		0.846	2.860*		0.743	2.738
		(1.088)	(1.691)		(1.086)	(1.689)		(1.079)	(1.686)
INFLATION		0.032*	0.031*		0.032*	0.031*		0.032*	0.031*
		(0.018)	(0.018)		(0.018)	(0.018)		(0.018)	(0.018)
No. of observations	147	147	147	147	147	147	147	147	147
No. of countries	7	7	7	7	7	7	7	7	7

Values in parentheses represent standard errors. All models are estimated using the LSDVC method with the Blundell and Bond (1998) estimator. MIGI(-1) represents the one-period lagged inclusive growth index

MIGI Multidimensional Inclusive Growth Index, *BNIM* banks' net interest margin (%), *BNITTO* bank noninterest income to total income (%), *BCTIR* bank cost to income ratio (%), *PCBDMB* private credit by deposit money banks to GDP (%), *INFLATION* inflation, average consumer prices (% changes), *LIFEEXPECTANCY* life expectancy at birth, *INVESTMENT* total investment (% GDP)

***, **, * represent the significances of the coefficients at 1%, 5%, and 10%, respectively

Table 8 Effects of noninterest bank income (as a share of total income) and private credit from deposit banks on inclusive growth

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Bias correction used:$O(1/T)$			Bias correction used:$O(1/NT)$			Bias correction used:$O(1/NT^2)$		
	Dependent variable: MIGI								
MIGI(-1)	0.804***	0.775***	0.743***	0.804***	0.786***	0.754***	0.844***	0.815***	0.784***
	(0.059)	(0.069)	(0.071)	(0.059)	(0.067)	(0.069)	(0.057)	(0.069)	(0.071)
BNITTO	-0.312	-0.361	-0.703	-0.311	-0.361	-0.702	-0.320	-0.364	-0.701
	(0.412)	(0.377)	(0.464)	(0.411)	(0.377)	(0.463)	(0.415)	(0.380)	(0.465)
BNITTO*PCBDMB			7.103			7.091			6.986
			(5.457)			(5.453)			(5.497)
INVESTMENT		-0.0987	-0.139		-0.0959	-0.136		-0.0885	-0.128
		(0.164)	(0.169)		(0.163)	(0.168)		(0.164)	(0.168)
LIFEEXPECTANCY		1.232	1.494		1.211	1.473		1.128	1.383
		(1.074)	(1.102)		(1.075)	(1.103)		(1.076)	(1.106)
INFLATION		0.029*	0.029*		0.029*	0.029*		0.029*	0.029*
		(0.017)	(0.018)		(0.017)	(0.018)		(0.017)	(0.018)
No. of observations	147	147	147	147	147	147	147	147	147
No. of countries	7	7	7	7	7	7	7	7	7

Values in parentheses represent standard errors. All models are estimated using the LSDVC method with the Blundell and Bond (1998) estimator. MIGI(-1) represents the one-period lagged inclusive growth index

MIGI Multidimensional Inclusive Growth Index, *BNIM* banks' net interest margin (%), *BNITTO* bank noninterest income to total income (%), *BCTIR* bank cost to income ratio (%), *PCBDMB* private credit by deposit money banks to GDP (%), *INFLATION* inflation, average consumer prices (% changes), *LIFEEXPECTANCY* life expectancy at birth, *INVESTMENT* total investment (% GDP)

***, **, * represent the significances of the coefficients at 1%, 5%, and 10%, respectively

Table 9 Effects of the cost-to-income ratio of banks and private credit by deposit money banks on inclusive growth

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Bias correction used: $O(1/T)$			Bias correction used: $O(1/NT)$			Bias correction used: $O(1/NT^2)$		
	Dependent variable: MIGI								
MIGI(-1)	0.796***	0.776***	0.769***	0.803***	0.790***	0.782***	0.829***	0.818***	0.803***
	(0.060)	(0.065)	(0.059)	(0.059)	(0.064)	(0.058)	(0.061)	(0.066)	(0.060)
BCTIR	−0.397	−0.470	−0.373	−0.396	−0.465	−0.368	−0.399	−0.468	−0.371
	(0.312)	(0.326)	(0.325)	(0.313)	(0.325)	(0.324)	(0.314)	(0.324)	(0.324)
BCTIR*PCBDMB			−0.297***			−0.295***			−0.294***
			(0.0997)			(0.0997)			(0.100)
INVESTMENT		−0.171	−0.098		−0.168	−0.094		−0.160	−0.085
		(0.173)	(0.171)		(0.172)	(0.170)		(0.173)	(0.171)
LIFEEXPECTANCY		0.975	1.008		0.927	0.969		0.825	0.896
		(1.039)	(0.995)		(1.037)	(0.994)		(1.035)	(0.992)
INFLATION		0.032*	0.029*		0.0318*	0.029*		0.032*	0.029*
		(0.017)	(0.017)		(0.017)	(0.017)		(0.017)	(0.017)
No. of observations	147	147	147	147	147	147	147	147	147
No. of countries	7	7	7	7	7	7	7	7	7

Values in parentheses represent standard errors. All models are estimated using the LSDVC method with the Blundell and Bond (1998) estimator. MIGI(-1) represents the one-period lagged inclusive growth index

MIGI Multidimensional Inclusive Growth Index, *BNIM* banks' net interest margin (%), *BNITTO* bank noninterest income to total income (%), *BCTIR* bank cost to income ratio (%), *PCBDMB* private credit by deposit money banks to GDP (%), *INFLATION* inflation, average consumer prices (% changes), *LIFEEXPECTANCY* life expectancy at birth, *INVESTMENT* total investment (% GDP)

***, **, * represent the significances of the coefficients at 1%, 5%, and 10%, respectively
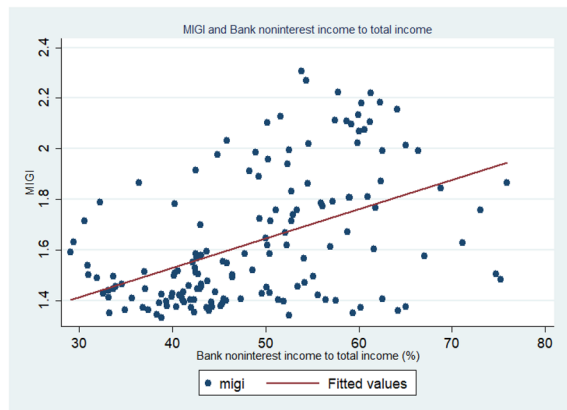
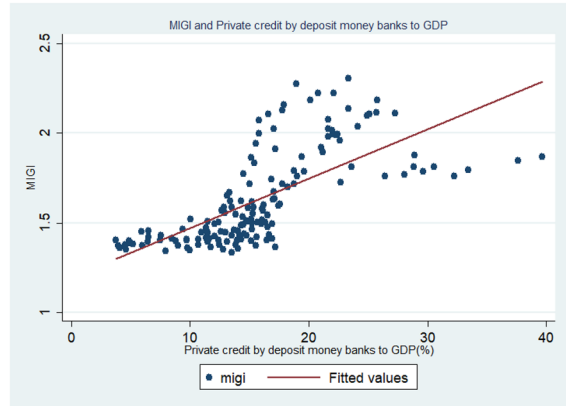**Fig. 3** Inclusive growth and bank cost to income ratio. Source: Authors
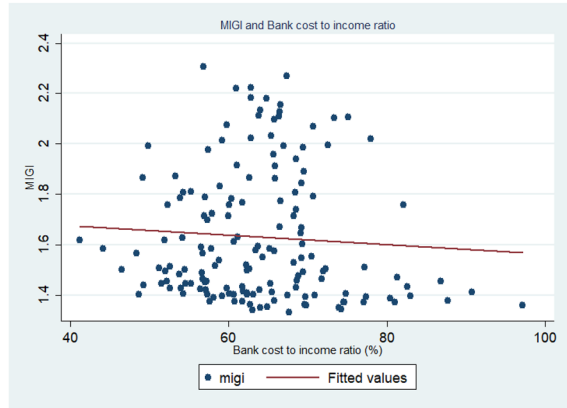
Fig. 4 Inclusive growth and bank net interest margin. Source: Authors
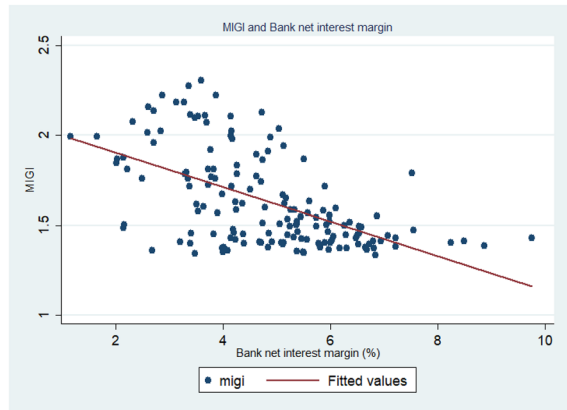
Fig. 5 Inclusive growth and bank noninterest income to total income. Source: Authors

Fig. 6 Inclusive growth and private credit by deposit money banks. Source: Authors

Concluding Remarks and Policy Recommendations

The banking system acts as one of the principal channels to reflect its effect on the economy and its poor performance can affect the rest of the social and economic sectors. It is in this context that this study analyzes the impact banking system's performance and its degree of inclusiveness on inclusive growth in seven of the eight West African Economic and Monetary Union (WAEMU) countries. Data were collected from various sources and cover the 1996–2017 period. This paper constructed a Multidimensional Inclusive Growth Index and relied on the LSDVC (least square dummy variable corrected) method of Bruno (2005a) for short dynamic panel data.

The study's analysis suggests that, although there are some differences across the country, the countries have a low level of inclusive growth. However, progress has been observed throughout the year, suggesting that economic growth becomes more inclusive over time.

The results suggest that an efficient (in terms of activities related to the net interest margin) and inclusive banking system (which provides sufficient private credit) promote more inclusive economic growth. The banking sector's contribution to inclusive growth in the WAEMU zone would be achieved through a decrease in lending rates and a decrease in cost/income ratios (reflecting a decrease in costs or an increase in revenues), combined with an increase in private credit provided. These results highlight that the banking sector's role in inclusive growth in the WAEMU is not an illusion. From this perspective, banks need to conduct their lending activities efficiently by reducing their interest margins to promote inclusive growth in the countries concerned. The Central Bank (BCEAO) and the States should further support banks in making liquidity available to economic agents by adapting their offers to key segments of the population. The Central Bank could implement this through incentives for granting of sectoral credits. In addition, the following could be explored: (i) the definition by the Central Bank of a given percentage of banks' revenues that they should dedicate, as part of their lending program, for credits towards specific sectors based on governments national development plans and inclusive

growth programs; (ii) strengthen systems for monitoring and timely repayment of loans in order to provide more financial opportunities to others in a virtuous process.

These actions will reinforce banks' role in supply side factors that drive inclusive growth, and contribute to mitigating the supply side processes that prevent disadvantaged segments of population from accessing to the banking system. It will allow a larger share of the excluded populations benefiting from the economic growth process to rely on other sources of investment than their own savings, and thus to obtain more promising investment opportunities in education, health, housing, entrepreneurship, etc. Indeed, in the absence of an inclusive banking system, the poor must rely on their own limited savings to invest in key areas necessary for economic inclusion, thereby reducing such investments. On the other hand, increasing the availability of low-cost credit to vulnerable segments of society, especially to young people with innovative technological ideas, can be expected to contribute to inclusive growth as the digital economy is expected to improve overall living standards.

The paper also provides evidence that the inflation level in the WAEMU does not harm inclusive growth, therefore suggesting that the Central Bank should continue its efforts to control inflation since macroeconomic stability is an essential factor for sustainable and inclusive growth. The inflation targeting policy allows for inflation control in the WAEMU zone. The BCEAO will have to strengthen surveillance and support WAEMU member countries.

One of the limitation of the study pertains to the fact that the Multidimensional Inclusive Growth Index constructed does not capture the social protection dimensions of inclusion. This is due to unavailability of long series data on social protection for the countries under study. In addition, the study did not consider disruptions in the economic environment of the sub-region and at the international level, such as the effects of the 2008 financial crisis, with consequences such as the reduction in people's purchasing power, which would have weakened the effects of measures aimed at greater economic inclusion.

While this study considered the performance and inclusiveness of the banking sector, future researches might deepen the analysis focusing on other measures of banking sector such as access and stability to ascertain possible linkages and policies towards inclusive growth. Another lead for future researches is to consider the structure of the banking landscape, which could have an impact on banking inclusion, and ultimately on inclusive growth. This is due to the fact that the most dynamic banks in the WAEMU zone are branches of foreign banks whose policies often do not meet the expectations of all the segments of the population.

Declarations

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