
Development Pathways toward Inclusive Green Growth in Emerging Economies

Ngozi Eze¹ and Chidi Okeke²

¹ University of Lagos - Nigeria

² University of Lagos - Nigeria

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Abstract

This paper examines the relationships between economic growth, social inclusion, and environmental sustainability in emerging economies. It considers economic expansion not only in terms of output performance but also through its capacity to reduce poverty, improve access to productive opportunities, strengthen financial and social inclusion, and limit environmental degradation. The literature shows that sustained growth does not automatically generate equitable or environmentally sustainable outcomes. Institutional quality, financial inclusion, human capital, infrastructure, technological innovation, renewable energy, green finance, and public policy influence the extent to which economic progress is translated into broader welfare improvements. The paper also emphasizes the concept of inclusive green growth as an integrated framework connecting economic efficiency, social participation, and ecological preservation. The reviewed contributions indicate that emerging economies face significant trade-offs but also important complementarities among these objectives. Effective development strategies therefore require coordinated institutional, fiscal, technological, financial, and environmental policies capable of expanding productive opportunities while reducing socioeconomic inequalities and environmental pressures. The paper concludes that the sustainability of economic transformation depends increasingly on the quality, distribution, and environmental content of growth rather than on its aggregate rate alone.

Keywords: Economic Growth; Social Inclusion; Environmental Sustainability; Inclusive Green Growth; Emerging Economies

JEL classification: O11; O15; Q56; Q42; G20

Introduction

Economic growth remains a central objective of emerging economies seeking to increase productive capacity, employment, household income, and public resources. However, the development experience of these economies shows that improvements in aggregate output do not necessarily produce comparable improvements in social welfare. Growth may coexist with persistent poverty, unequal income distribution, limited access to finance, regional disparities, inadequate infrastructure, or exclusion from productive opportunities. These limitations have contributed to a broader conception of development in which the quality and distribution of economic expansion receive greater attention. Social inclusion therefore concerns the capacity of individuals and households to participate effectively in economic transformation through em-

ployment, education, financial services, infrastructure, and access to public services. The literature reviewed in this paper consequently approaches economic performance through a multi-dimensional perspective linking macroeconomic expansion to poverty reduction, human capital, financial participation, employment conditions, and institutional effectiveness. This perspective is particularly relevant for emerging economies, where structural transformation can generate substantial economic opportunities while simultaneously producing unequal benefits across social groups and territories. Development performance therefore depends not only on the pace of growth but also on the mechanisms through which its benefits are distributed and converted into sustainable improvements in living conditions.

At the same time, the environmental consequences of economic transformation have become increasingly important in evaluating the sustainability of emerging-economy development strategies. Industrialization, urbanization, expanding energy demand, international investment, and natural-resource exploitation can stimulate economic activity while increasing carbon emissions and environmental pressure. The challenge is therefore to reconcile continued productive transformation with cleaner energy systems, technological modernization, improved resource efficiency, and socially accessible development opportunities. The concept of inclusive green growth provides an appropriate framework for addressing this challenge because it integrates economic performance, social inclusion, and environmental sustainability within the same development process. The literature reviewed in this paper shows that renewable energy, green finance, eco-innovation, digitalization, energy efficiency, public investment, and institutional quality can create complementarities among these objectives. However, their effects remain conditional on governance, policy coordination, territorial diffusion, and the allocation of financial and technological resources. This paper therefore examines three interconnected dimensions: the relationship between economic growth and social inclusion, the interaction between growth and environmental sustainability, and the institutional, financial, technological, and policy mechanisms through which emerging economies may combine these objectives within more inclusive and environmentally sustainable development pathways.

1. Economic Growth and Social Inclusion in Emerging Economies

1.1. Inclusive Growth, Poverty Reduction and Income Distribution

Aoyagi and Ganelli (2015) show that rapid economic expansion does not automatically translate into broadly shared improvements in living standards, particularly when disadvantaged groups remain excluded from productive opportunities. Ngepah (2017) reinforces this perspective by defining inclusive growth as a process that combines economic expansion with employment, poverty reduction, human development and effective participation in productive activity. Mitra and Das (2018) further demonstrate that economies with comparable growth rates can differ substantially in equitable access, institutional efficiency and the distribution of welfare gains, supporting a multidimensional assessment of development performance. Amponsah et al. (2023) add that persistent poverty and inequality can substantially weaken the inclusiveness of subsequent economic expansion in sub-Saharan Africa. Taken together, these contributions imply that aggregate growth is an insufficient criterion for evaluating development in emerging economies. A more appropriate framework considers who participates in growth, how opportunities are distributed and whether gains improve the position of disadvantaged populations. Policies aimed at raising productivity should therefore be accompanied by measures that broaden access to employment, education, services and other mechanisms through which households can participate effectively in economic transformation.

Doumbia (2019) demonstrates that governance quality conditions the capacity of economic growth to generate pro-poor and inclusive outcomes by influencing redistribution, public-service provision and access to productive opportunities. Fowowe and Folarin (2019) complement this institutional perspective by showing that fragility and unequal access to finance constrain broad participation in economic activity across African economies. Raheem et al. (2018) further demonstrate that natural-resource abundance does not automatically produce inclusive development because resource revenues generate broader welfare only when they are effectively transformed into human capital and productive capabilities. Van Niekerk (2020) similarly emphasizes institutional effectiveness, employment creation and human-capital development as complementary requirements for socially sustainable growth in Africa. Together, these contributions indicate that inclusive growth depends on the institutional mechanisms through which economic resources are converted into accessible opportunities. Resource abundance or financial deepening can coexist with exclusion when institutions distribute benefits unevenly or fail to build productive capabilities. Emerging economies should therefore combine macroeconomic expansion with stronger governance, broader financial access and sustained investment in human capital if growth is to reach disadvantaged groups.

El Hamidi (2023) approaches Morocco's growth performance from a pro-poor perspective and emphasizes the importance of assessing economic expansion according to its consequences for lower-income groups rather than aggregate production alone. Aoyagi and Ganelli (2015) provide a broader comparative foundation by showing that growth requires complementary structural and redistributive policies when access to its benefits remains unequal. Doumbia (2019) further demonstrates that institutional quality influences whether economic expansion improves the conditions of poorer households, while Amponsah et al. (2023) show that persistent inequality and poverty can restrict the capacity of growth to become genuinely inclusive. Considered jointly, these contributions place pro-poor growth within a wider inclusive-development framework linking macroeconomic performance, distribution and institutional effectiveness. For emerging economies such as Morocco, sustained GDP growth should therefore be evaluated alongside changes in poverty, inequality and access to productive opportunities. Policies capable of improving the distributional content of growth are particularly important where structural disparities persist, because economic expansion contributes to inclusive development only when disadvantaged households obtain durable improvements in their capacity to participate in and benefit from economic activity.

1.2. Financial Inclusion, Institutions and Public Policy

Kim (2016) shows that financial inclusion can modify the relationship between inequality and economic growth by extending saving, borrowing and investment opportunities to households and firms previously excluded from formal finance. Omar and Inaba (2020) reinforce this argument by demonstrating that broader access to financial services is associated with reductions in poverty and income inequality across developing economies. Sarpong and Nketiah-Amponsah (2022) further connect access to payments, savings and credit with inclusive growth in sub-Saharan Africa, emphasizing the role of underserved groups in broadening productive participation. Menyelim et al. (2021) add that financial inclusion can support sustainable economic growth while improving distributional conditions by expanding the productive base beyond established firms and higher-income households. Taken together, these contributions indicate that financial development becomes inclusive only when access extends beyond conventional measures of banking depth. The developmental contribution of finance depends on who can use financial services, for what purposes, and under what conditions. Emerging economies should therefore evaluate financial-sector progress through accessibility, affordability and productive

use rather than through aggregate credit expansion alone, particularly where informal activity and socioeconomic exclusion remain substantial.

Whajah et al. (2019) demonstrate that fiscal conditions influence the capacity of African governments to translate economic expansion into broadly distributed welfare improvements, particularly through the interaction between public expenditure and debt sustainability. Adeosun et al. (2020) complement this perspective by showing that public investment can improve infrastructure, service access and productive opportunities, making the composition and geographical distribution of expenditure important for inclusive growth. Oyinlola et al. (2020) further emphasize that domestic-resource mobilization contributes more effectively to inclusion when governance institutions ensure that taxation and public revenues are transformed into education, infrastructure and social services. Iddrisu et al. (2023) provide a related institutional qualification from the financial sector by demonstrating that the contribution of financial inclusion to inclusive growth depends partly on financial stability. Together, these studies imply that resource mobilization alone does not guarantee broad-based development. Fiscal expansion, taxation and financial access require institutional frameworks capable of allocating resources effectively while preserving macroeconomic and financial sustainability. Inclusive-growth strategies should therefore combine stronger public investment and domestic fiscal capacity with governance and prudential arrangements that protect the durability of developmental gains. Aslam et al. (2021) show that inclusive growth reflects the interaction of institutional, digital and social inclusion, demonstrating that technological diffusion produces broader economic benefits only when access, skills and institutional conditions allow individuals to participate productively. Kim (2016) provides a complementary financial perspective by showing that formal access can widen economic participation when households and firms gain effective opportunities to save, borrow and invest. Iddrisu et al. (2023) further demonstrate that expansion of access must occur within a stable financial system if inclusion is to generate sustained developmental effects. Oyinlola et al. (2020) add that effective governance determines whether domestically mobilized resources are converted into infrastructure and services that expand participation. Considered jointly, these contributions suggest that inclusive growth requires coordinated institutional foundations rather than isolated interventions. Digitalization, financial access and fiscal capacity can reinforce one another, but their effects depend on governance quality, stability and the ability of disadvantaged groups to use newly available opportunities. Emerging economies should therefore pursue integrated inclusion strategies that connect technological access, financial participation and public-resource management instead of treating them as separate policy domains.

1.3. Human Capital, Infrastructure, Employment and Broader Social Inclusion

Mutiiria et al. (2020) show that infrastructure can promote inclusive growth by improving connectivity, productivity and access to economic opportunities, particularly when investments reach populations and territories previously constrained by inadequate services. Nchake and Shuaibu (2022) extend this argument to information and communication technologies, demonstrating that digital infrastructure can reduce geographical barriers and improve access to markets and information, although its effects depend on complementary human and institutional capacities. Adejumo et al. (2020) further caution that technology-driven growth can increase output without generating broader inclusion when digital access and skills remain unevenly distributed. Kjølner-Hansen and Lindbjerg Sperling (2020) add an employment dimension by arguing that inclusion should be assessed through productivity, earnings and the capacity of work to improve living standards rather than through job numbers alone. Taken together, these contributions indicate that infrastructure and technological transformation contribute to inclusive growth only when they expand meaningful productive participation. Emerging economies

should therefore combine physical and digital investment with skills development and employment policies capable of converting improved connectivity into better-quality economic opportunities for disadvantaged groups.

Cichowicz and Rollnik-Sadowska (2018) demonstrate that inclusive growth contributes directly to sustainable development because long-term economic progress is weakened when employment opportunities and income gains remain unequally distributed. Xetor and Mensah (2025) reinforce this connection by emphasizing complementarities among productive opportunity, social welfare and long-term resource conditions, thereby positioning inclusion within the broader architecture of sustainable development. Drago et al. (2025) add a financial and ESG perspective, showing that wider financial access can support socially sustainable growth when accompanied by appropriate institutional and sustainability standards. Mutiiria et al. (2020) further demonstrate that infrastructure investment can reduce spatial and socioeconomic barriers when its benefits extend to underserved populations. Together, these contributions imply that inclusive and sustainable growth should not be treated as separate policy objectives. Economic durability depends partly on whether infrastructure, finance and productive opportunities are distributed widely enough to strengthen participation and social cohesion. Development strategies should therefore assess not only aggregate investment and output effects but also the territorial and social distribution of opportunities generated by economic transformation.

Adejumo et al. (2020) show that technological progress can widen existing disparities when skills and digital infrastructure remain concentrated among already advantaged groups, making distribution an essential dimension of innovation policy. Nchake and Shuaibu (2022) similarly demonstrate that ICT investment supports inclusive growth when digital connectivity becomes sufficiently widespread and is supported by complementary institutional capabilities. Drago et al. (2025) broaden this perspective by linking financial access with social inclusion and ESG conditions, suggesting that access-oriented financial development should remain embedded in institutional and sustainability frameworks. Cichowicz and Rollnik-Sadowska (2018) further show that persistent exclusion undermines the long-term sustainability of economic development even when aggregate growth remains positive. Considered jointly, these contributions imply that emerging economies need coordinated strategies connecting technological diffusion, financial access, infrastructure and social inclusion. Expanding access without strengthening capabilities may reproduce inequality in new forms, whereas complementary investments in skills, institutions and territorial accessibility can transform technological and financial change into more broadly shared development.

2. Economic Growth and Environmental Sustainability in Emerging Economies

2.1. Economic Growth, Carbon Emissions and Environmental Pressure

Abdouli et al. (2018) show that economic growth, population density and foreign investment jointly influence carbon emissions in BRICS economies, challenging the assumption that rising income will automatically reduce environmental degradation. Silva de Castro et al. (2019) reinforce this concern by demonstrating a persistent long-term relationship between economic expansion and CO₂ emissions across BRICS countries, reflecting continued dependence on carbon-intensive productive and energy structures. Danish et al. (2019) add that natural-resource use can intensify environmental pressure, whereas greater reliance on renewable energy can mitigate some of the ecological costs associated with resource-dependent development. Ummalla and Goyari (2021) similarly identify clean-energy consumption as an important mechanism for reducing the carbon intensity of growth. Taken together, these contributions indicate that emerging economies cannot rely on economic development alone to generate environmental

improvement. Decoupling growth from emissions requires deliberate changes in energy composition, resource management and production technologies. Environmental sustainability should therefore be treated as an active component of development strategy rather than as an outcome expected to emerge automatically after countries reach higher income levels.

Haseeb et al. (2018) demonstrate that financial development and globalization affect carbon emissions in BRICS economies, indicating that deeper financial systems and stronger international integration can have important environmental consequences. Rafique et al. (2020) extend this perspective by showing that foreign direct investment, technological innovation and financial development are environmentally conditional on the sectors and technologies toward which capital is directed. Li et al. (2021) similarly emphasize that financial expansion can stimulate economic activity while simultaneously increasing environmental pressure when financing continues to support carbon-intensive production. Abdouli et al. (2018) further show that foreign investment interacts with growth and demographic conditions in shaping emissions. Together, these contributions imply that financial deepening and international capital flows are not inherently compatible with sustainable development. Their environmental contribution depends on regulatory frameworks and investment incentives capable of influencing capital allocation. Emerging economies should therefore complement financial liberalization and investment promotion with environmental criteria that encourage cleaner technologies, energy efficiency and low-carbon production rather than assuming that greater capital availability will automatically improve environmental performance.

Zhang and Wang (2019) show that renewable-energy consumption and service-sector development can jointly reduce the environmental intensity of economic activity, highlighting the importance of both energy transition and structural transformation. Danish et al. (2019) reinforce this argument by demonstrating that renewable energy can counterbalance some of the environmental pressures created by natural-resource-dependent growth. Rafique et al. (2020) add that technological innovation can influence the environmental consequences of investment and financial development, making technological direction an important element of green transformation. Ummalla and Goyari (2021) further demonstrate that greater clean-energy consumption can support continued economic expansion while reducing carbon emissions. Considered jointly, these contributions suggest that emerging economies possess several complementary pathways for reconciling growth with environmental sustainability. Shifting toward cleaner energy, less carbon-intensive sectors and environmentally oriented technological innovation can progressively weaken the link between production and emissions. Development policy should therefore coordinate industrial restructuring, renewable-energy expansion and technological investment rather than addressing economic growth and environmental protection as separate objectives.

2.2. Renewable Energy, Environmental Technology and Green Transformation

Zaman et al. (2016) show that energy consumption, environmental quality, health and wealth are closely interconnected in BRICS economies, indicating that environmental deterioration can reduce the welfare gains associated with economic expansion. Tugcu and Tiwari (2016) complement this perspective by comparing renewable and non-renewable energy consumption through their relationship with total-factor-productivity growth, thereby extending the energy debate beyond aggregate GDP. Banday and Aneja (2020) further demonstrate that energy use, economic growth and carbon emissions are linked through complex causal relationships, meaning that energy policy cannot be separated from broader macroeconomic strategy. Fu et al. (2021) add that renewable-energy expansion can contribute to decarbonization while supporting economic activity, although its effects depend on investment conditions and supporting in-

frastructure. Taken together, these contributions imply that energy transition in emerging economies should be evaluated simultaneously through environmental, productivity and welfare dimensions. Renewable energy becomes a component of durable growth when it improves the efficiency and sustainability of production while limiting the social costs associated with pollution. Energy, environmental and development policies should therefore be coordinated rather than designed independently.

Shahbaz et al. (2016) demonstrate that biomass energy can contribute to economic activity and reduce dependence on conventional fossil fuels, although its environmental benefits depend on how biomass resources are produced and managed. Ummalla et al. (2019) provide a more technology-specific perspective by showing that hydropower consumption can influence both economic growth and CO₂ emissions in BRICS economies. Banday and Aneja (2020) reinforce the importance of energy composition by showing that renewable and non-renewable energy sources generate different interactions with output and environmental pressure. Zaman et al. (2016) further connect cleaner energy with broader human welfare by emphasizing the health and environmental costs generated by unsustainable energy systems. Together, these contributions suggest that renewable energy should not be treated as a homogeneous category. Different technologies involve distinct productive, environmental and resource-management implications. Emerging economies should therefore diversify their energy transitions while considering the specific economic and ecological characteristics of biomass, hydropower and other renewable sources. Such differentiation can help reconcile energy security, economic expansion and environmental protection without assuming that every renewable technology produces identical sustainability outcomes.

Danish and Ulucak (2020) identify environmental technologies as an important driver of green growth in BRICS economies because technological modernization can improve resource efficiency and reduce pollution intensity while maintaining development objectives. Gu et al. (2018) broaden this technological perspective by emphasizing South–South cooperation, investment and technology transfer between BRICS countries and African economies as potential mechanisms for supporting green infrastructure and clean-energy development. Fu et al. (2021) further show that renewable energy can reduce ecological pressure while supporting economic growth when adequate infrastructure and investment conditions are present. Tugcu and Tiwari (2016) add that the economic contribution of renewable energy should also be assessed through productivity effects rather than output growth alone. Considered jointly, these contributions imply that green transformation depends on more than substituting one energy source for another. It requires technological capability, investment, infrastructure and international cooperation capable of embedding cleaner energy within productive systems. Emerging economies can therefore strengthen green growth by combining renewable-energy deployment with environmental innovation, domestic technological upgrading and cooperation that supports long-term productive capacity.

2.3. Green Finance, Investment, Innovation and Sustainable Business Transformation

Hunjra et al. (2024) show that the environmental consequences of economic growth in developing economies depend on financial, structural and policy conditions rather than on GDP expansion alone. Tariq and Xu (2024) extend this perspective by demonstrating that green trade openness, eco-innovation and carbon pricing can jointly improve the compatibility between international integration and low-carbon growth. Abbass et al. (2024) further show that foreign investment, trade openness, energy consumption and technological innovation interact in shaping environmental outcomes across N-11 economies, with cleaner technologies and energy structures playing particularly important roles. Caglar et al. (2025) add that low-carbon energy

consumption, although necessary, is insufficient on its own to secure environmental sustainability when production structures and regulatory systems remain environmentally inefficient. Taken together, these contributions indicate that sustainable growth requires coordinated structural transformation rather than isolated environmental interventions. Emerging economies should therefore combine cleaner energy with technological upgrading, credible environmental regulation and trade policies capable of encouraging lower-carbon production. The environmental quality of growth ultimately depends on how economic openness, energy systems and technological capabilities are organized within a coherent long-term development strategy. Qadri et al. (2023) demonstrate that green finance can redirect capital toward environmentally preferable projects, while the ecological effects of foreign direct investment depend on technological characteristics and regulatory conditions. Ali et al. (2024) reinforce this financial perspective by showing that green finance and technological innovation can operate as complementary drivers of green economic growth, since finance reduces investment constraints while innovation improves resource efficiency. Khan et al. (2025) further emphasize that financial flows are not environmentally neutral because their consequences depend on the sectors and technologies receiving capital. Wang et al. (2025) add that domestic investment also plays an important role in supporting renewable-energy deployment and productive capacity, suggesting that green transformation cannot depend exclusively on foreign capital. Together, these contributions imply that the composition of finance matters as much as its volume. Emerging economies need financial systems capable of screening investments according to environmental characteristics and directing domestic and international capital toward cleaner infrastructure, renewable energy and technological modernization. Sustainable financial integration therefore requires both adequate funding and institutional mechanisms ensuring that capital allocation supports long-term environmental objectives.

Touil et al. (2023) transfer the growth–environment relationship to the firm level by showing that greener supply-chain adoption depends on organizational and strategic conditions affecting sourcing, production and logistics decisions. Ali et al. (2024) complement this organizational perspective by demonstrating that technological innovation can improve resource efficiency when supported by green financial resources. Tariq and Xu (2024) further show that eco-innovation and carbon pricing can create incentives for lower-emission economic activity, while Qadri et al. (2023) emphasize that finance can support environmental sustainability when investment is directed toward lower-impact activities. Considered jointly, these contributions suggest that green growth emerges through interactions between macroeconomic policy and firm-level transformation. Financial incentives and environmental regulation can alter investment decisions, but their effectiveness ultimately depends on whether firms adopt cleaner technologies and reorganize production and supply-chain practices. Emerging economies should therefore connect green finance, eco-innovation and sustainable supply-chain management within integrated industrial strategies capable of reconciling competitiveness with lower environmental costs.

3. Integrating Economic Growth, Social Inclusion and Environmental Sustainability

3.1. Conceptualizing and Measuring Inclusive Green Growth

Sun et al. (2020) demonstrate that inclusive green growth should be assessed through a multi-dimensional framework integrating economic performance, social inclusion, resource use and environmental outcomes. Their regional evidence from China shows that strong economic performance does not necessarily translate into equally favorable social and ecological results. Li et al. (2021) reinforce this perspective across the Asia-Pacific region by showing that progress

in one development dimension cannot fully compensate for persistent weaknesses in others. Aslam and Ghouse (2023) provide the broader conceptual foundation by presenting sustainable inclusive green growth as the simultaneous pursuit of economic expansion, social inclusion and environmental protection. Fan et al. (2023) further demonstrate that these combined outcomes vary substantially across Chinese cities, revealing important spatial inequalities that national aggregates may conceal. Taken together, these contributions imply that emerging economies require development indicators capable of evaluating the quality and distribution of growth rather than output expansion alone. Inclusive green growth therefore provides a more comprehensive benchmark because it combines economic opportunity with social accessibility and ecological sustainability while recognizing substantial territorial heterogeneity.

Ren et al. (2022) show that digital-economy agglomeration can contribute to inclusive green growth by affecting economic efficiency, environmental performance and development opportunities, although its effects differ across territories. Ben Amara and Qiao (2023) complement this technological perspective by demonstrating that eco-innovation and international collaboration can facilitate the transition from conventional growth toward environmentally more sustainable and socially broader development. Ofori et al. (2022) further show that improvements in energy efficiency generate stronger inclusive-green outcomes when supported by sufficiently effective governance institutions. Sun et al. (2020) provide an important territorial qualification by demonstrating that regional capacities to combine economic, social and environmental objectives remain highly uneven. Together, these contributions suggest that technological transformation is an important but conditional driver of inclusive green growth. Digitalization, eco-innovation and energy efficiency can improve development quality, but their benefits depend on institutional capabilities and the territorial diffusion of new technologies. Emerging economies should therefore accompany technological modernization with governance and diffusion mechanisms that prevent innovation from becoming concentrated in already advantaged regions or groups.

Ofori and Figari (2023) demonstrate that economic globalization can support inclusive green growth in Africa through technology, finance and expanded market access, but only when domestic governance conditions permit these opportunities to generate broadly distributed and environmentally sustainable benefits. Ofori et al. (2022) reinforce this institutional interpretation by identifying governance thresholds that condition the contribution of energy efficiency to inclusive-green outcomes. Ben Amara and Qiao (2023) add that international cooperation can facilitate access to knowledge and technologies required for lower-carbon development, while Li et al. (2021) show that the success of such transformation must ultimately be assessed across economic, social and environmental dimensions simultaneously. Considered jointly, these contributions imply that international integration does not automatically produce sustainable and inclusive development. Its effects depend on domestic institutions capable of converting external finance, markets and technological knowledge into locally accessible opportunities and environmental improvements. Emerging economies should therefore strengthen governance capacity alongside globalization and international cooperation so that external integration supports a balanced transition toward economically productive, socially inclusive and environmentally sustainable growth.

3.2. Infrastructure, Digitalization, Fiscal Policy and Energy Pathways

Song et al. (2024) show that new infrastructure can promote inclusive green growth when investment simultaneously improves productivity, accessibility and environmental performance rather than merely expanding aggregate output. De Pascale and Romagno (2024) complement this perspective by demonstrating that ICT capital and globalization can support economic effi-

ciency and wider access, although their contribution depends on whether technological and financial benefits are broadly distributed and environmentally compatible. Wang and Chen (2024) further connect technological upgrading with inclusive green growth through new quality productive forces, emphasizing that innovation must diffuse across firms, workers and territories if productivity gains are to generate wider social benefits. Feng et al. (2024) add a regional dimension by showing that integration can improve resource allocation, technological diffusion and coordination within the Yangtze River Economic Belt, although benefits remain spatially uneven. Taken together, these contributions indicate that infrastructure and technological modernization become genuinely inclusive-green mechanisms only when they reduce territorial barriers and diffuse productive opportunities. Emerging economies should therefore evaluate infrastructure, digital capital and regional integration through their distributional and environmental consequences rather than through investment volumes alone.

Wu et al. (2025) demonstrate that the composition of fiscal expenditure can influence inclusive green growth by directing public resources toward productive, social and environmental functions simultaneously. Song et al. (2024) reinforce the importance of public-investment design by showing that the technological, spatial and ecological characteristics of new infrastructure determine whether it supports a lower-carbon and more accessible development trajectory. Feng et al. (2024) further show that regional integration can improve coordination and resource allocation, suggesting that public expenditure becomes more effective when embedded in territorially coherent development strategies. Wang and Chen (2024) add that productive modernization can raise efficiency and reduce resource intensity, although inclusive outcomes depend on the diffusion of innovation across economic actors. Together, these contributions imply that public policy should focus on the structure and territorial allocation of development expenditure rather than simply increasing spending. Fiscal resources can strengthen inclusive green growth when they support connectivity, technological diffusion, environmental improvement and access to productive opportunities in less advantaged regions. This requires coordination between fiscal, regional and industrial policies rather than isolated investment programs.

Kamguia et al. (2025) show that energy efficiency can moderate the environmental costs of industrialization in Africa, allowing structural transformation to proceed with lower ecological intensity. Ofori et al. (2023) provide a complementary investment perspective by demonstrating that foreign direct investment contributes more favorably to inclusive green growth when energy is used efficiently. Jinapor et al. (2025) further emphasize that energy access remains essential for productive participation and household welfare in sub-Saharan Africa, while also noting that the source of energy and characteristics of foreign investment influence environmental sustainability. De Pascale and Romagno (2024) broaden this interpretation by showing that globalization and ICT capital can facilitate technology and capital flows when their benefits are distributed widely. Considered jointly, these contributions indicate that emerging economies need to reconcile industrialization, foreign investment and energy expansion with efficiency improvements and cleaner technological structures. Economic transformation can support inclusion without proportionately increasing environmental pressure when capital inflows, energy systems and industrial policies are coordinated around productivity, accessibility and environmental performance.

3.3. Institutional, Financial and Sustainable-Development Synergies

Kamah et al. (2021) show that inclusive growth and environmental sustainability in sub-Saharan Africa share an important institutional foundation, since effective institutions influence environmental regulation, resource allocation and access to economic opportunities. Le et al. (2025) reinforce this argument by demonstrating that the contribution of public expenditure to sustainable development depends substantially on the institutional quality governing allocation

and implementation. Ofori et al. (2023) extend the institutional perspective to foreign direct investment, showing that international capital produces more favorable inclusive-green outcomes when domestic policy conditions support technological upgrading and broader developmental benefits. Han et al. (2025) add a natural-resource dimension by demonstrating that blue-economy development in transition economies becomes sustainable only when governance simultaneously protects marine ecosystems and preserves access to livelihoods and economic participation. Taken together, these contributions indicate that institutions mediate the relationship between economic resources and sustainable outcomes. Public spending, foreign capital and natural-resource exploitation do not automatically generate inclusive or environmentally favorable development. Emerging economies therefore require governance arrangements capable of directing resources toward productive opportunities while protecting ecological assets and ensuring that the resulting benefits remain socially accessible.

Khan et al. (2025) demonstrate that financial inclusion, clean energy and green innovation can operate as complementary mechanisms for improving environmental sustainability in emerging economies. Xian (2025) reinforces this integrated perspective by linking fintech, inclusive growth and environmental-policy incentives, showing that digital financial development can influence both resource allocation and economic participation while regulatory incentives shape the environmental direction of investment. Agustin et al. (2025) further show that green finance and renewable energy can reduce CO₂ emissions in emerging ASEAN economies, particularly when their effects are considered over longer time horizons. Ofori et al. (2023) add that the developmental value of external capital depends on domestic institutional and policy conditions rather than on investment volume alone. Together, these contributions suggest that financial transformation can support sustainable development when inclusion and environmental objectives are incorporated into capital allocation. Digital finance and broader financial access can expand participation, but their environmental contribution depends on whether resources are directed toward clean energy and green innovation. Emerging economies should therefore connect financial inclusion, green finance and environmental incentives within coordinated development strategies.

Fritz and Koch (2016) question development models centered on continuous material expansion by demonstrating structural tensions among prosperity, ecological sustainability and social inclusion. Their framework suggests that welfare improvements should be assessed through quality of life and environmental pressure rather than material output alone. Han et al. (2025) extend this reasoning to marine and coastal development by showing that natural-resource-based growth must preserve ecosystems while sustaining livelihoods and inclusive participation. Kamah et al. (2021) similarly demonstrate that social inclusion and environmental protection are mutually dependent on institutional quality, while Khan et al. (2025) show that clean energy, green innovation and financial inclusion can create complementarities between economic participation and ecological improvement. Considered jointly, these contributions imply that sustainable development requires a broader conception of prosperity in which economic opportunities, social welfare and ecological limits are addressed simultaneously. Emerging economies should therefore pursue growth pathways that expand capabilities and livelihoods without reproducing resource-intensive development patterns, using institutional reform, technological innovation and inclusive finance to support lower-impact forms of prosperity.

4. Discussion

The literature first establishes that economic growth cannot be considered inclusive solely because aggregate income increases. Aoyagi and Ganelli (2015) show that economic expansion requires complementary structural and redistributive policies when disadvantaged populations remain excluded from its benefits, while Ngepah (2017) conceptualizes inclusive growth

through employment, poverty reduction, human development, and productive participation. Doumbia (2019) adds an institutional dimension by demonstrating that governance influences the extent to which growth generates pro-poor outcomes. This interpretation is consistent with El Hamidi (2023), whose assessment of Morocco emphasizes the need to evaluate economic performance according to its consequences for lower-income groups. Financial access constitutes another channel through which participation can be broadened. Kim (2016) and Omar and Inaba (2020) associate financial inclusion with improved opportunities for saving, borrowing, investment, and reductions in inequality. Nevertheless, access alone remains insufficient when institutional weaknesses prevent financial and public resources from reaching productive uses. The evidence therefore supports a conception of inclusion based on capabilities rather than economic expansion alone. Growth becomes socially meaningful when employment, finance, infrastructure, education, and public policy enable disadvantaged groups to participate in productive activity and obtain durable improvements in welfare.

The environmental literature similarly rejects the assumption that rising income will automatically reduce ecological pressure. Abdouli et al. (2018) and Silva de Castro et al. (2019) demonstrate that economic expansion remains closely associated with carbon emissions in major emerging economies, particularly where energy and productive structures remain carbon intensive. Danish et al. (2019) nevertheless show that renewable energy can mitigate some environmental pressures arising from natural-resource-dependent development, while Ummalla and Goyari (2021) identify clean-energy consumption as a mechanism for reducing the carbon intensity of growth. These findings indicate that the environmental effects of financial development, foreign investment, and technological change are conditional rather than predetermined. Rafique et al. (2020) show that technological innovation and the characteristics of investment substantially influence environmental outcomes, while Danish and Ulucak (2020) identify environmental technologies as drivers of resource efficiency and green growth. More recent contributions reinforce the importance of coordinated financial and policy frameworks. Qadri et al. (2023) and Ali et al. (2024) associate green finance and technological innovation with more sustainable capital allocation. The central implication is that environmental improvement requires structural transformation in energy, technology, production, finance, and regulation rather than reliance on growth-induced environmental adjustment.

The integration of economic, social, and environmental objectives is most clearly expressed through inclusive green growth. Sun et al. (2020) define this process through multidimensional indicators combining economic performance, social conditions, resource use, and environmental outcomes, while Aslam and Ghouse (2023) emphasize the simultaneous pursuit of growth, inclusion, and ecological protection. The reviewed literature also indicates that institutional quality determines whether technological and financial transformation generates balanced outcomes. Ofori et al. (2022) show that governance conditions the contribution of energy efficiency to inclusive green growth, and Ofori and Figari (2023) demonstrate that globalization produces broader benefits only where domestic institutions can convert external opportunities into inclusive and environmentally sustainable development. Infrastructure and fiscal policy reinforce these mechanisms. Song et al. (2024) associate new infrastructure with inclusive green growth when it improves productivity, accessibility, and environmental performance simultaneously, while Wu et al. (2025) highlight the role of fiscal-expenditure composition. Khan et al. (2025) further connect financial inclusion, clean energy, and green innovation. Collectively, these contributions suggest that inclusive green transformation requires policy coordination across institutions, finance, technology, energy, infrastructure, and territorial development rather than isolated interventions in individual sectors.

Conclusion

This paper has examined the relationship between economic growth, social inclusion, and environmental sustainability in emerging economies from an integrated development perspective. The literature demonstrates that economic expansion remains necessary for generating employment, investment, fiscal resources, and productive opportunities, but it is insufficient as an indicator of development quality. Growth can coexist with poverty, inequality, financial exclusion, territorial disparities, and limited access to productive opportunities when institutional and distributional mechanisms remain weak. Similarly, economic transformation can increase environmental pressures when industrialization, financial development, foreign investment, and energy consumption remain concentrated in carbon-intensive activities. These findings suggest that development performance should be assessed through the capacity of growth to improve participation, welfare, and environmental conditions simultaneously. Financial inclusion, infrastructure, education, human capital, public expenditure, governance, and productive employment influence the social distribution of economic gains, while renewable energy, environmental technologies, green finance, and eco-innovation determine whether productive transformation can occur with lower environmental costs. The resulting policy challenge is therefore not to choose between growth, inclusion, and environmental protection but to design institutions and incentives capable of producing complementarities among them.

Inclusive green growth consequently provides a suitable framework for reinterpreting development strategies in emerging economies. Its contribution lies in combining economic efficiency with wider participation and ecological sustainability while recognizing that outcomes depend strongly on institutional and territorial conditions. Public policy has an important role in directing investment toward infrastructure, human capabilities, renewable energy, technological modernization, and environmentally sustainable productive activities. Financial systems can reinforce this transition when access to finance is expanded while capital is simultaneously directed toward cleaner technologies and green investment. International integration and foreign direct investment can also support development through technology transfer and additional financial resources, although their effects depend on domestic governance and environmental regulation. The literature therefore supports coordinated policy approaches in which fiscal policy, financial inclusion, innovation, energy transition, infrastructure, and institutional reform are treated as complementary components of economic transformation. For emerging economies, long-term development should consequently be evaluated not only through the rate of GDP growth but also through the distribution of opportunities, the resilience of social welfare, the efficiency of resource use, and the preservation of environmental conditions necessary to sustain future economic and social progress.

References

1. Adejumo, O. O., Adejumo, A. V., & Aladesanmi, T. (2020). Technology-driven growth and inclusive growth—Implications for sustainable development in Africa. *Technology in Society*, 63, 101373. DOI: 10.1016/j.techsoc.2020.101373.
2. Adeosun, O. A., Olomola, P. A., Adedokun, A., & Ayodele, O. (2020). Public investment and inclusive growth in Africa. *International Journal of Social Economics*, 47(12), 1669–1691. DOI: 10.1108/IJSE-05-2020-0333.
3. Abdouli, M., Kamoun, O., & Hamdi, B. (2018). The impact of economic growth, population density, and FDI inflows on CO2 emissions in BRICS countries: Does the Kuznets curve exist? *Empirical Economics*, 54(4), 1717–1742. DOI: 10.1007/s00181-017-1263-0.
4. Abbass, K., Zafar, M. W., Khan, F., Begum, H., & Song, H. (2024). COP 28 policy perspectives: Achieving environmental sustainability through FDI, technological innovation index, trade

- openness, energy consumption, and economic development in N-11 emerging economies. *Journal of Environmental Management*, 369, 122271. DOI: 10.1016/j.jenvman.2024.122271.
5. Agustin, I. N., Mahendra, R. A., & Hesniati, H. (2025). How does green finance affect the environment in the ASEAN emerging countries? *Economic Journal of Emerging Markets*, 17(1), 70–81. DOI: 10.20885/ejem.vol17.iss1.art6.
 6. Ali, A., Li, J., Zhang, J., & Chishti, M. Z. (2024). Exploring the impact of green finance and technological innovation on green economic growth: Evidence from emerging market economies. *Sustainable Development*, 32(6), 6392–6407. DOI: 10.1002/sd.3031.
 7. Amponsah, M., Agbola, F. W., & Mahmood, A. (2023). The relationship between poverty, income inequality and inclusive growth in Sub-Saharan Africa. *Economic Modelling*, 126, 106415. DOI: 10.1016/j.econmod.2023.106415.
 8. Aoyagi, C., & Ganelli, G. (2015). Asia's quest for inclusive growth revisited. *Journal of Asian Economics*, 40, 29–46. DOI: 10.1016/j.asieco.2015.06.005.
 9. Aslam, A., & Ghouse, G. (2023). Targeting the new sustainable inclusive green growth: A review. *Cleaner and Responsible Consumption*, 11, 100140. DOI: 10.1016/j.clrc.2023.100140.
 10. Aslam, A., Naveed, A., & Shabbir, G. (2021). Is it an institution, digital or social inclusion that matters for inclusive growth? A panel data analysis. *Quality & Quantity*, 55(1), 333–355. DOI: 10.1007/s11135-020-01008-3.
 11. Banday, U. J., & Aneja, R. (2020). Renewable and non-renewable energy consumption, economic growth and carbon emission in BRICS: Evidence from bootstrap panel causality. *International Journal of Energy Sector Management*, 14(1), 248–260. DOI: 10.1108/IJESM-02-2019-0007.
 12. Ben Amara, D., & Qiao, J. (2023). From economic growth to inclusive green growth: How do carbon emissions, eco-innovation and international collaboration develop economic growth and tackle climate change? *Journal of Cleaner Production*, 425, 138986. DOI: 10.1016/j.jclepro.2023.138986.
 13. Caglar, A. E., Daştan, M., Demirdag, I., & Avci, S. B. (2025). Is low carbon energy consumption sufficient for a sustainable environment in BRICS economies? Evidence from novel Fourier asymmetric CS-ARDL. *Stochastic Environmental Research and Risk Assessment*, 39, 1291–1306. DOI: 10.1007/s00477-025-02913-5.
 14. Cichowicz, E., & Rollnik-Sadowska, E. (2018). Inclusive growth in CEE countries as a determinant of sustainable development. *Sustainability*, 10(11), 3973. DOI: 10.3390/su10113973.
 15. Danish, Baloch, M. A., Mahmood, N., & Zhang, J. W. (2019). Effect of natural resources, renewable energy and economic development on CO₂ emissions in BRICS countries. *Science of the Total Environment*, 678, 632–638. DOI: 10.1016/j.scitotenv.2019.05.028.
 16. Danish, & Ulucak, R. (2020). How do environmental technologies affect green growth? Evidence from BRICS economies. *Science of the Total Environment*, 712, 136504. DOI: 10.1016/j.scitotenv.2020.136504.
 17. De Pascale, G., & Romagno, A. (2024). Globalization and ICT capital endowment: How do they impact on an inclusive Green Growth Index? *Structural Change and Economic Dynamics*, 69, 463–474. DOI: 10.1016/j.strueco.2024.03.003.
 18. Doumbia, D. (2019). The quest for pro-poor and inclusive growth: The role of governance. *Applied Economics*, 51(16), 1762–1783. DOI: 10.1080/00036846.2018.1529392.
 19. Drago, C., Costantiello, A., Arnone, M., & Leogrande, A. (2025). Bridging sustainability and inclusion: Financial access in the environmental, social, and governance landscape. *Journal of Risk and Financial Management*, 18(7), 375. DOI: 10.3390/jrfm18070375.
 20. El Hamidi, N. (2023). La croissance pro pauvre au Maroc: L'intelligence artificielle au service de la macroéconomie. *Revue Internationale du Chercheur*, 4(1), 312–334. DOI not assigned.



21. Fan, S., Huang, H., Mbanyele, W., Guo, Z., & Zhang, C. (2023). Inclusive green growth for sustainable development of cities in China: Spatiotemporal differences and influencing factors. *Environmental Science and Pollution Research*, 30(4), 11025–11045. DOI: 10.1007/s11356-022-22697-3.
22. Feng, Y., Sun, M., Pan, Y., & Zhang, C. (2024). Fostering inclusive green growth in China: Identifying the impact of the regional integration strategy of Yangtze River Economic Belt. *Journal of Environmental Management*, 358, 120952. DOI: 10.1016/j.jenvman.2024.120952.
23. Fowowe, B., & Folarin, E. O. (2019). The effects of fragility and financial inequalities on inclusive growth in African countries. *Review of Development Economics*, 23(3), 1141–1176. DOI: 10.1111/rode.12594.
24. Fritz, M., & Koch, M. (2016). Economic development and prosperity patterns around the world: Structural challenges for a global steady-state economy. *Global Environmental Change*, 38, 41–48. DOI: 10.1016/j.gloenvcha.2016.02.007.
25. Fu, Q., Álvarez-Otero, S., Sial, M. S., Comite, U., Zheng, P., Samad, S., & Oláh, J. (2021). Impact of renewable energy on economic growth and CO2 emissions—Evidence from BRICS countries. *Processes*, 9(8), 1281. DOI: 10.3390/pr9081281.
26. Gu, J., Renwick, N., & Xue, L. (2018). The BRICS and Africa's search for green growth, clean energy and sustainable development. *Energy Policy*, 120, 675–683. DOI: 10.1016/j.enpol.2018.05.028.
27. Han, S., Bin Kamaruddin, B. H., & Shi, X. (2025). The intertwined threads of blue economy, inclusive growth, and environmental sustainability in transition economies. *Sustainability*, 17(3), 1054. DOI: 10.3390/su17031054.
28. Haseeb, A., Xia, E., Danish, Baloch, M. A., & Abbas, K. (2018). Financial development, globalization, and CO2 emission in the presence of EKC: Evidence from BRICS countries. *Environmental Science and Pollution Research*, 25(31), 31283–31296. DOI: 10.1007/s11356-018-3034-7.
29. Hunjra, A. I., Bouri, E., Azam, M., Azam, R. I., & Dai, J. (2024). Economic growth and environmental sustainability in developing economies. *Research in International Business and Finance*, 70(A), 102341. DOI: 10.1016/j.ribaf.2024.102341.
30. Iddrisu, K., Doku, J. N., Abor, J. Y., & Dziwornu, R. (2023). Financial inclusion and inclusive growth in Africa: What is the moderation role of financial stability? *Cogent Economics & Finance*, 11(2), 2267857. DOI: 10.1080/23322039.2023.2267857.
31. Jinapor, J. A., Abor, J. Y., & Graham, M. (2025). Energy consumption and inclusive growth in Sub-Saharan Africa: Does foreign direct investment make a difference? *Energy Policy*, 198, 114500. DOI: 10.1016/j.enpol.2025.114500.
32. Kamah, M., Riti, J. S., & Bin, P. (2021). Inclusive growth and environmental sustainability: The role of institutional quality in sub-Saharan Africa. *Environmental Science and Pollution Research*, 28(26), 34885–34901. DOI: 10.1007/s11356-021-13125-z.
33. Kamguia, B., Tadadjeu, S., Ndoya, H., & Djeunankan, R. (2025). Assessing the nexus between industrialization and inclusive green growth in Africa: The critical role of energy efficiency. *Ecological Economics*, 233, 108601. DOI: 10.1016/j.ecolecon.2025.108601.
34. Khan, N. H., He, W., & Min, A. (2025). Environmental quality and financial flows in emerging economies: Evidence from BRICS countries. *Journal of Environmental Management*, 387, 125854. DOI: 10.1016/j.jenvman.2025.125854.
35. Khan, Z., Ali, S., & Zhu, X. (2025). Environmental sustainability via sustainable development: The role of green innovation, clean energy and financial inclusion. *Journal of Environmental Management*, 393, 127175. DOI: 10.1016/j.jenvman.2025.127175.
36. Kim, J.-H. (2016). A study on the effect of financial inclusion on the relationship between income inequality and economic growth. *Emerging Markets Finance and Trade*, 52(2), 498–512. DOI: 10.1080/1540496X.2016.1110467.



37. Kjølner-Hansen, A. O., & Lindbjerg Sperling, L. (2020). Measuring inclusive growth experiences: Five criteria for productive employment. *Review of Development Economics*, 24(4), 1413–1429. DOI: 10.1111/rode.12689.
38. Le, H. P., Nguyen, T. H. P., & Bao, H. H. G. (2025). Government expenditure and sustainable development in emerging markets: The role of institutional quality. *Journal of Open Innovation: Technology, Market, and Complexity*, 11(2), 100558. DOI: 10.1016/j.joitmc.2025.100558.
39. Li, F., Wu, Y.-C., Wang, M.-C., Wong, W.-K., & Xing, Z. (2021). Empirical study on CO2 emissions, financial development and economic growth of the BRICS countries. *Energies*, 14(21), 7341. DOI: 10.3390/en14217341.
40. Li, M., Zhang, Y., Fan, Z., & Chen, H. (2021). Evaluation and research on the level of inclusive green growth in Asia-Pacific region. *Sustainability*, 13(13), 7482. DOI: 10.3390/su13137482.
41. Menyelim, C. M., Babajide, A. A., Omankhanlen, A. E., & Ehikioya, B. I. (2021). Financial inclusion, income inequality and sustainable economic growth in Sub-Saharan African countries. *Sustainability*, 13(4), 1780. DOI: 10.3390/su13041780.
42. Mitra, A., & Das, D. (2018). Inclusive growth: Economics as if people mattered. *Global Business Review*, 19(3), 756–770. DOI: 10.1177/0972150917713840.
43. Mutiiria, O. M., Ju, Q., & Dumor, K. (2020). Infrastructure and inclusive growth in Sub-Saharan Africa: An empirical analysis. *Progress in Development Studies*, 20(3), 187–207. DOI: 10.1177/1464993420927507.
44. Nchake, M. A., & Shuaibu, M. (2022). Investment in ICT infrastructure and inclusive growth in Africa. *Scientific African*, 17, e01293. DOI: 10.1016/j.sciaf.2022.e01293.
45. Ngepah, N. (2017). A review of theories and evidence of inclusive growth: An economic perspective for Africa. *Current Opinion in Environmental Sustainability*, 24, 52–57. DOI: 10.1016/j.cosust.2017.01.008.
46. Ofori, I. K., & Figari, F. (2023). Economic globalisation and inclusive green growth in Africa: Contingencies and policy-relevant thresholds of governance. *Sustainable Development*, 31(1), 452–482. DOI: 10.1002/sd.2403.
47. Ofori, I. K., Figari, F., & Ojong, N. (2023). Towards sustainability: The relationship between foreign direct investment, economic freedom and inclusive green growth. *Journal of Cleaner Production*, 406, 137020. DOI: 10.1016/j.jclepro.2023.137020.
48. Ofori, I. K., Gbolonyo, E. Y., & Ojong, N. (2022). Towards inclusive green growth in Africa: Critical energy efficiency synergies and governance thresholds. *Journal of Cleaner Production*, 369, 132917. DOI: 10.1016/j.jclepro.2022.132917.
49. Ofori, I. K., Gbolonyo, E. Y., & Ojong, N. (2023). Foreign direct investment and inclusive green growth in Africa: Energy efficiency contingencies and thresholds. *Energy Economics*, 117, 106414. DOI: 10.1016/j.eneco.2022.106414.
50. Omar, M. A., & Inaba, K. (2020). Does financial inclusion reduce poverty and income inequality in developing countries? A panel data analysis. *Journal of Economic Structures*, 9, 37. DOI: 10.1186/s40008-020-00214-4.
51. Oyinola, M. A., Adediji, A. A., Bolarinwa, M. O., & Olabisi, N. (2020). Governance, domestic resource mobilization, and inclusive growth in sub-Saharan Africa. *Economic Analysis and Policy*, 65, 68–88. DOI: 10.1016/j.eap.2019.11.006.
52. Qadri, S. U., Shi, X., Rahman, S., Anees, A., Ali, M. S. E., Brancu, L., & Nayel, A. N. (2023). Green finance and foreign direct investment–environmental sustainability nexuses in emerging countries: New insights from the environmental Kuznets curve. *Frontiers in Environmental Science*, 11, 1074713. DOI: 10.3389/fenvs.2023.1074713.
53. Raheem, I. D., Isah, K. O., & Adediji, A. A. (2018). Inclusive growth, human capital development and natural resource rent in SSA. *Economic Change and Restructuring*, 51, 29–48. DOI: 10.1007/s10644-016-9193-y.



54. Rafique, M. Z., Li, Y., Larik, A. R., & Monaheng, M. P. (2020). The effects of FDI, technological innovation, and financial development on CO2 emissions: Evidence from the BRICS countries. *Environmental Science and Pollution Research*, 27(19), 23899–23913. DOI: 10.1007/s11356-020-08715-2.
55. Ren, S., Li, L., Han, Y., Hao, Y., & Wu, H. (2022). The emerging driving force of inclusive green growth: Does digital economy agglomeration work? *Business Strategy and the Environment*, 31(4), 1656–1678. DOI: 10.1002/bse.2975.
56. Sarpong, B., & Nketiah-Amponsah, E. (2022). Financial inclusion and inclusive growth in sub-Saharan Africa. *Cogent Economics & Finance*, 10(1), 2058734. DOI: 10.1080/23322039.2022.2058734.
57. Shahbaz, M., Rasool, G., Ahmed, K., & Mahalik, M. K. (2016). Considering the effect of biomass energy consumption on economic growth: Fresh evidence from BRICS region. *Renewable and Sustainable Energy Reviews*, 60, 1442–1450. DOI: 10.1016/j.rser.2016.03.037.
58. Silva de Castro, A., da Silva Alves, J., & Caixeta Andrade, D. (2019). Economic growth and CO2 emissions in BRICS: A panel cointegration analysis. *Economia Aplicada*, 23(2), 183–208. DOI: 10.11606/1980-5330/ea146203.
59. Song, Y., Huang, H., Li, Y., & Xia, J. (2024). Towards inclusive green growth in China: Synergistic roles and mechanisms of new infrastructure construction. *Journal of Environmental Management*, 353, 120281. DOI: 10.1016/j.jenvman.2024.120281.
60. Sun, Y., Ding, W., Yang, Z., Yang, G., & Du, J. (2020). Measuring China's regional inclusive green growth. *Science of the Total Environment*, 713, 136367. DOI: 10.1016/j.scitotenv.2019.136367.
61. Tariq, M., & Xu, Y. (2024). Toward low-carbon emissions and green growth for sustainable development in emerging economies: Do green trade openness, eco-innovation, and carbon price matter? *Sustainable Development*, 32(1), 959–978. DOI: 10.1002/sd.2711.
62. Touil, A., Ayad, K., El Hamidi, N., & Babounia, A. (2023). Toward greener supply chains: Analysis of the determining factors. *Environmental Economics*, 14(2), 114–126. DOI: 10.21511/ee.14(2).2023.09.
63. Tugcu, C. T., & Tiwari, A. K. (2016). Does renewable and/or non-renewable energy consumption matter for total factor productivity growth? Evidence from the BRICS. *Renewable and Sustainable Energy Reviews*, 65, 610–616. DOI: 10.1016/j.rser.2016.07.016.
64. Ummalla, M., & Goyari, P. (2021). The impact of clean energy consumption on economic growth and CO2 emissions in BRICS countries: Does the environmental Kuznets curve exist? *Journal of Public Affairs*, 21(1), e2126. DOI: 10.1002/pa.2126.
65. Ummalla, M., Samal, A., & Goyari, P. (2019). Nexus among the hydropower energy consumption, economic growth, and CO2 emissions: Evidence from BRICS countries. *Environmental Science and Pollution Research*, 26(34), 35010–35022. DOI: 10.1007/s11356-019-06638-1.
66. van Niekerk, A. J. (2020). Towards inclusive growth in Africa. *Development Southern Africa*, 37(3), 519–533. DOI: 10.1080/0376835X.2020.1736004.
67. Wang, L., Pal, S., Mahalik, M. K., & Gozgor, G. (2025). Empowering sustainable development in emerging economies: The role of renewable energy and domestic investment. *Energy Economics*, 148, 108631. DOI: 10.1016/j.eneco.2025.108631.
68. Wang, Q., & Chen, X. (2024). Can new quality productive forces promote inclusive green growth: Evidence from China. *Frontiers in Environmental Science*, 12, 1499756. DOI: 10.3389/fenvs.2024.1499756.
69. Whajah, J., Bokpin, G. A., & Kuttu, S. (2019). Government size, public debt and inclusive growth in Africa. *Research in International Business and Finance*, 49, 225–240. DOI: 10.1016/j.ribaf.2019.03.008.



70. Wu, Y., Song, L., & Zhou, X. (2025). Can adjust the fiscal expenditure structure promote inclusive green growth? Empirical evidence from China. *Review of Development Economics*, 29(3), 1712–1733. DOI: 10.1111/rode.13185.
71. Xian, M. (2025). Impact of inclusive growth, environmental policy incentives, fintech and globalization on environmental sustainability in G20 countries. *Sustainability*, 17(1), 50. DOI: 10.3390/su17010050.
72. Xetor, L. E., & Mensah, J. (2025). Inclusive growth and sustainable development nexus: Where is the synergy? *Sustainable Development*, 33(4), 6189–6197. DOI: 10.1002/sd.3430.
73. Zaman, K., Abdullah, A. bin, Khan, A., Nasir, M. R. bin M., Hamzah, T. A. A. T., & Hussain, S. (2016). Dynamic linkages among energy consumption, environment, health and wealth in BRICS countries: Green growth key to sustainable development. *Renewable and Sustainable Energy Reviews*, 56, 1263–1271. DOI: 10.1016/j.rser.2015.12.010.
74. Zhang, Y.-J., & Wang, W. (2019). Do renewable energy consumption and service industry development contribute to CO2 emissions reduction in BRICS countries? *Environmental Science and Pollution Research*, 26(31), 31632–31643. DOI: 10.1007/s11356-019-06330-4.

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