

Accounting for Infrastructural Investment and Economic Development

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How to cite this paper: Ocansey, E. O. N. D., Asirifi, E. K., & Peparah, E. (2025). Accounting for Infrastructural Investment and Economic Development. *Voice of the Publisher*, 11, 495-516.

<https://doi.org/10.4236/vp.2025.113033>

Received: June 27, 2025

Accepted: September 2, 2025

Published: September 5, 2025

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Abstract

This study evaluates the impacts of infrastructure accounting and financial reporting practices on economic development. It aims at systematizing the empirical knowledge through systematic review of the recent literature. The review is consistent in its findings that transparent and standardized accounting system of infrastructure spending has a positive contribution to the economic development. Countries implementing high-quality financial reporting have been observed to record enhanced economic performance, such as the effectiveness of infrastructure and high levels of investor confidence. Regardless of these insights, there is a little concern in the literature on the microeconomic consequences of infrastructure accounting and the part played by digital innovation in financial reporting procedures. The results imply that policymakers and development agencies ought to put resources into the fortification of infrastructure accounting practices to improve the result of public investment. Transparent financial reporting systems and standardized financial reporting can help encourage efficiency and attract private capital and encourage institutional reforms that enhance fiscal accountability, especially in low- and middle-income countries.

Keywords

Infrastructure Accounting, Infrastructural Development, Economics Development, Financial Transparency, Fiscal Reporting, Systematic Review

1. Introduction

It has always been recognized that infrastructure investments are the pillars of sustainable economic development. As nations encounter surging demands of a sound transport network, energy supply networks, ICT infrastructure and logistic systems, the need to monitor, evaluate and report on such investments in a sys-

tematic manner has become extremely essential. At the heart of this process is the role of accounting, both with respect to regulatory compliance and financial transparency as well as in supporting strategic assessment, resource allocation and policymaking. This is the case in most of the developing economies where the lack of infrastructure has been one of the greatest impediments to growth: transparent and efficient accounting mechanisms can greatly enhance the worth and efficiency of these investments. The existence of the relationship between infrastructure development and economic performance is agreed upon by empirical literature. To take some specific findings, [Zhou, Raza and Sui \(2021\)](#) conclude that infrastructure investment promotes the quality of economic growth across different provinces in China substantially, but also note the existence of regional disparities concerning the results of investment. On the African continent, [Ekeocha, Ogbuabor and Orji \(2022\)](#) presented facts that properly maintained state infrastructure translates into better economic statistics. Similarly, [Sun, Ajaz and Razzaq \(2022\)](#) showed that the development of infrastructure in BRICS countries also impacted resources use and technical efficiency, hence the need not only to invest but also to manage and report on such projects properly.

Regardless of these results, the explicit role of accounting in infrastructure investment and the way it is connected with the development goals still appear to be a significant gap in the scholarly literature. Most studies focus on the macroeconomic effects and forget about accountability frameworks and financial reporting systems to hold these investments to account. As an example, [Unnikrishnan and Kattookaran \(2020\)](#) and [Alam et al. \(2021\)](#) investigated the impact of infrastructure on the growth of the Indian and Pakistani economies, respectively, but did not pay much attention to the accounting systems underpinning such investments. On the same note, sector specific studies by [Özer, Canbay and Krca \(2021\)](#) on transport infrastructure in Türkiye and [Nchake and Shuaibu \(2022\)](#) on ICT in Africa, failed to include the accounting aspects that are critical in assessing the investment performance. In this regard, to fulfill this gap, this systematic literature review (SLR) will concentrate on the use of accounting principles, standards, and systems in monitoring the infrastructure investments and assessing the role of infrastructure investments in economic development. This review could not have been timed any better, as infrastructure financing has become a rather complex subject, encompassing the concepts of a public-private partnership, donor-based financing, and climate-proof infrastructure. Honest and clear accounting in such situations is the main aspect that guarantees sustainability and efficacy in the long run. Both the digital and transport infrastructure projects studied by [Shahbaz et al. \(2021\)](#) and [David et al. \(2025\)](#) bring more significant socio-economic benefits when in line with national development strategies, which, in turn, is highly dependent on the existence of reliable accounting systems. More than that, in the age of digital transformation, the role of accounting becomes even more accentuated. [Pradhan et al. \(2021\)](#) and [Yu et al. \(2023\)](#) research point to the same direction and argue that infrastructure expansion, financial inclusion, and sustainabil-

ity are closely intertwined, and a single framework is required in which infrastructure accounting is co-landscape with development metrics.

Accordingly, the SLR seeks to: 1) summarize the current evidence on the accounting treatment of infrastructure investment across various sectors and regions; 2) determine the practical efficient accounting practices and generic reporting issues in infrastructure; and 3) evaluate how accounting mechanisms aid in realizing and measuring economic development goals. The study makes contributions that are useful to policy makers, development agencies and academic researchers focused on the interrelation between financial accountability and infrastructure led-growth. The rest of the study is organized in the following way. Research methodology is described in the next section and includes the strategy of the literature search and selection criteria, data extraction and analysis procedures. The third part draws the important conclusions and groups them into four major themes: 1) Infrastructure accounting standards and frameworks, 2) Governance, transparency and accountability mechanisms, 3) The role of accounting in infrastructure investment decision-making, and 4) The impact of accounting practices on development outcomes. Lastly, the final part of the work provides the findings and suggests the areas of future research.

2. Methodology

This study pursued a systematic literature review (SLR) method to review the extent to which infrastructure accounting can impact economic development. The procedure followed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guideline to make the review of the chosen literature thorough, systematic, and transparent. The main objective was to evaluate the capability of resilient accounting and financial reporting on infrastructure investments to contribute to measurable economic signs, including gross domestic product (GDP) growth, creation of employment, and enhanced productivity. An effective search plan was adopted and applied to a number of the most significant academic and institutional databases, such as Google Scholar, SpringerLink, Emerald Insight, Taylor & Francis, MDPI, and World Bank Open Knowledge Repository. Literature published between 2020 and 2025 was reviewed, and particular attention was paid to peer-reviewed articles, as well as policy reports and working papers, which addressed the relationship between infrastructure-related accounting practices and the rest of the economy. This date range was selected due to the rapid changes and increase in the level of infrastructural investments, digital accounting innovations, and global development policies during this period. A greater percent of changes and increase is witnessed after the COVID-19 pandemic outbreak.

The search strategy was to use a combination of keywords and Boolean connections like “infrastructure accounting”, “financial reporting”, “economic growth”, “employment”, “productivity”, and “return on investment” to determine the pertinent researches. This method allowed to gather a wide but focused literature that

was applicable to the research questions of the study. In order to control relevance and quality, inclusion criteria were developed to accept only the English-language publications of the identified time period that investigated the relationships between infrastructure accounting and economic performance measures in an empirical way. English-language publication was selected, because most of the databases, journals, and institutional reports were published in English and the challenges of translation of other languages can hamper the analysis of studies. To mitigate the constraints of time and language, reputable databases and reports are used for this study.

The chosen literature was required to be on financial reporting or assessment models like the return on investment (ROI) or transparency systems in the infrastructure projects. Qualitative and quantitative researches, mixed-methods studies were all eligible. The studies excluded were either out of the publication period, theoretical or empirical basis lacking, not in English or talking about infrastructure development with none or little attention towards accounting or evaluation of financial performance.

Screening was done in three stages initial title, abstract, and a full-text screen. The initial search in the database has retrieved 167 records. 92 articles were left after eliminating duplicates and checking abstracts on a very basic level of relevance. This was further filtered by full-text evaluations with respect to the inclusion and exclusion criteria of the study. In the end, 41 papers were chosen to be included in the review. These last articles proven to be of high empirical value, directly related to the topic of the intervening relationship between infrastructure accounting and economic performance, as well as consistent with the general thematic scope. Articles not kept tended not to include the in-depth analysis of the financial mechanisms, had weak methodology or outdated methodology, or did not measurably connect the accounting practices with the development outcomes. A thematic matrix was systematically used to extract data and organize important information concerning each study. The information retrieved was authorship, year of publication, country or region under study, the kind of infrastructure under focus (like transport, energy or digital infrastructure), what financial and accounting indicators were used (like capital budgeting or transparency indicators), and what were the development outcomes being focused (like GDP growth, employment rates or productivity rates). The matrix also recorded the methodologies used that included econometric approaches such as regression analysis and structural equation modeling to case-based qualitative inquiries. Thematic synthesis was next applied to syntactically categorize studies into more analytically general categories, such as the impacts of financial accountability on economic returns, cross-national accounting standards, and integrations of digital technologies in public financial reporting on infrastructure.

In order to ensure integrity of the synthesis, methodological rigor of all the selected studies was assessed using recognized appraisal instruments. Studies that utilized both qualitative and quantitative methods were evaluated with the help of

the Mixed Methods Appraisal Tool (MMAT). Studies that were quantitative only were evaluated through the Joanna Briggs Institute (JBI) cross-sectional checklist. These instruments played a huge role in determining the reliability and validity of the evidence. On these assessments, studies were eliminated in case they had a quality threshold of less than 60 percent to maintain the analysis strength of the review. The 60 percent threshold was chosen to guarantee maximum methodological laxity, equilibrium of receptivity and selectivity, and to retain analysis prowess. The 60 percent is also consistent with prior literature standards. The review protocol adhered to PRISMA guidelines and provided procedural consistency in the review process since the initial database searches, all the way to the final reporting of the findings. This systematic design allowed the reproducibility of the review and reduced the possible bias during the selection of articles and interpretation. **Figure 1** presents the screening and selection of reviewed articles.

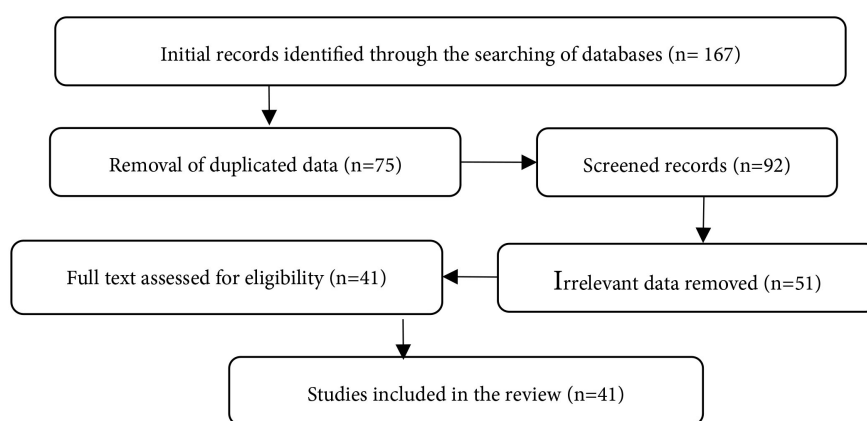


Figure 1. PRISMA flow diagram of article screening and selection.

The last group of 41 studies was a combination of a moderate methodological focus and geographical focus. Among them, 26 papers used quantitative methods, relying on statistical models, including regression and dynamic panel analysis, to measure the economic effects of infrastructure accounting. Qualitative approaches were used in nine studies, and many of these studies looked at case studies of governance, policy, or institutions. The other six applied mixed methods, as they combined financial performance analysis with economic evaluation. The geographical distribution of the studies encompassed such areas as Sub-Saharan Africa, the ASEAN member states, China, the Middle East, and South Asia, which creates a clear picture of the infrastructure accounting distribution across the world, and how it has contributed to economic development. The entire chosen literature was within the publication window of 2020-2025, which guarantees that the results correspond to the latest changes in the research and policy debate on infrastructure accounting and development.

Table 1 shows the summaries of the reviewed articles for this study. It indicates the author and date, country, region, sector, methods and key findings.

Table 1. Summaries of review studies.

Author and Date	Country	Region	Sector	Method	Key Findings
Foster et al. (2023b)	Global	Global	General	Qualitative Review	There is solid infrastructure development connection in literature
Henke et al. (2020)	Italy	Europe	Road	Sustainable Evaluation Method	Sustainable approaches enhance better road infrastructure decisions. With the pressure-driven models, there is better placement of infrastructure pressure-driven models enhance the infrastructure placement
Jia et al. (2022)	China	Asia	Runoff Control	Multi-Criteria Decision-Making	Economic growth is stimulated by transport infrastructure. Transport infrastructure stimulates economic growth
Ke et al. (2020)	China	Asia	Transport	Dynamic Panel GMM	Investment decisions increase with quality accounting. Difference between academic accounting standards and international accounting standards. Sustainability and economic growth through renewable energy works to its advantage
Khoufi (2020)	Emerging Markets	Global	Accounting	Empirical Analysis	
Lombardi et al. (2021)	Global	Global	Public	Literature Review	
Madaleno & Nogueira (2023)	Portugal	Europe	Renewable Energy	Extensive Analysis	
Masoud (2025)	Global	Global	Public Sector Accounting	Comprehensive Study	IFRS/IPSAS developments increase the accountability to the citizens. Governance is enhanced through transparency innovations
Mendoza & Cruz (2020)	Philippines	Asia	Governance	Transparency Assessment	
Nchake & Shuaibu (2022)	Africa	Africa	ICT	Empirical Study	ICT enhances inclusive growth.
Olanrewaju & Daramola (2024)	Nigeria	Africa	Sustainable Energy	Big Data Analysis	Energy decision-making increases with big data.
Özer et al. (2021)	Türkiye	Europe/Asia	Container Transport	ARDL Bounds Test	The transport of containers has implications on economic growth.
Pradhan et al. (2021)	India	Asia	ICT & Financial Inclusion	Dynamic Analysis	ICT and inclusion enhance the economy.
Seidu et al. (2020)	UK	Europe	General	Empirical Analysis	UK is boosted through infrastructure investing.
Shahbaz et al. (2021)	France	Europe	Transport	Multivariate Analysis	FDI is dependent on transport infrastructure.
Sobieralski (2021)	USA	North America	Transport	Comparative Evaluation	Not every investment is equal employment.
Srivastava et al. (2024)	India	Asia	Civil	Integrated Assessment	SDG infrastructure reporting
Sun et al. (2022)	BRICS	Global South	Energy, Transport, ICT	Efficiency Analysis	The infrastructure influences resource use. Sustainability reporting is supported by information infrastructure
Troshani & Rowbottom (2024)	Australia	Oceania	Sustainability Reporting	Theoretical Analysis	
Unnikrishnan & Kattookaran (2020)	India	Asia	Public/Private	Empirical Study	These two investments have positive impacts on growth

Continued

Viana & Moreira (2022)	Brazil	Latin America	Public-Private Partnerships	State Audit Review	Audits enhance the level of transparency and accountability
Wagner et al. (2023)	Netherlands	Europe	Infrastructure Agencies	Case Study	SDGs are an accountability system
Yakubu & Muhammed (2020)	Sub-Saharan Africa	Africa	Road	Fiscal Transparency Review	Competition improves the quality of roads
Yu et al. (2023)	BRICS	Global South	Transport & Renewable Energy	Nexus Analysis	Renewable and transport stimulate growth
Zhou et al. (2021)	China	Asia	General	Empirical Analysis	The quality of growth is enhanced through the infrastructure
Zolfaghari et al. (2020)	Iran	Asia	Socio-Economic	Econometric Modeling	Infrastructure contributes to lessening inequality in income
Afolabi (2023)	Africa	Africa	Digital	Qualitative Analysis	Crucial facilitators play a role in the movement of the digital economy
Alam et al. (2021)	Pakistan	Asia	Transport	ARDL Analysis	The economic development is causally affected by transport infrastructure
Alonge et al. (2024)	Emerging Markets	Global South	Digital/Financial Reporting	Qualitative Analysis	Digital transformation enhances responsible behaviour
Alotaibi et al. (2022)	Global	Europe	Railway	Dynamic Panel Analysis	The investments in railways develop the regional economy
Appiah et al. (2022)	Sub-Saharan Africa	Africa	General	Institutional Analysis	Institutions and government important to infrastructure
Bojórquez-Tapia et al. (2022)	Global	Global	Planning	Uncertainty Modeling	The uncertainty analysis improves infrastructure decision making
Chakamera & Pisa (2021)	Africa	Africa	Logistics	Econometric Modeling	A positive relationship between economic growth and logistics existed
Clercq et al. (2023)	Europe	Europe	Digital (Broadband)	Panel Data	Digital divide has an impact on growth in urban-rural areas
Corazza et al. (2023)	Europe	Europe	Megaprojects	Qualitative SDG Review	When it comes to megaproject delivery, the most important is sustainability
David et al. (2025)	Multiple Emerging Economies	Global	Digital	Multinational Panel	Due to digital change, the socio-economic growth occurs
Ehalaiye et al. (2020)	New Zealand	Oceania	Accounting/Public Assets	Case Study	Borrowing & investments are influenced by accounting info See also
Ehalaiye et al. (2021)	New Zealand	Oceania	Public Assets	Descriptive Analysis	Accounting enhances the knowledge of asset management
Ekeocha et al. (2022)	Africa	Africa	Public Infrastructure	Panel Data Analysis	In achieving economic performance in Africa, there is positive influence of public infrastructure
Ferrarez et al. (2020)	Brazil	Latin America	Infrastructure Projects	Sustainability Indicators Assessment	Sector reporting brings infrastructure in line with GRI reporting
Foster et al. (2023a)	Global	Global	General Infrastructure	Meta-analysis	The outcomes of positive developments of infrastructure are very high

3. Literature Review

3.1. Accounting Frameworks and Standards for Infrastructure Investment

The accounting systems, like the International Public Sector Accounting Standards (IPSAS), International Financial Reporting Standards (IFRS), and Government Finance Statistics (GFS) provide a systematic way of recognizing, measuring, depreciating and disclosing infrastructure-related assets. However, translation of these standards into practice is usually faced with challenge especially in areas of valuation method of assets, classification systems and financial transparency as a whole. As an example, [Ehalaiye, Redmayne and Laswad \(2021\)](#) examined the reports of local governments in New Zealand regarding their infrastructure assets. They noted a bias towards reporting those assets that are tangible and of high visibility, such as transportation infrastructure and buildings- and underreporting those systems which are less visible, but of equal criticality, such as information technology infrastructure or water utilities. This difference indicates the inconsistency of the application of accrual-based accounting and explains the necessity of more encompassing and transparent accounting standards that could reflect the extensiveness of infrastructure assets.

On the same note, [Zolfaghari, Kabiri and Saadatmanesh \(2020\)](#) determined the impact of infrastructure investment on income inequality in Iran. Although their research focused on socioeconomic performance, it made an indirect appeal to the relevance of keeping comprehensive and categorized accounting records to differentiate investments in sectors including transport, energy, health, and information and communication technology (ICT). Their study suggests that accounting systems must allow micro-level categorization of infrastructure spending to explicate their social economic outcomes. Such results indicate two major problems in the present accounting systems. First is the categorical discrepancy of infrastructure assets particularly the intangible assets and those related to ICT which tend to be omitted or under-represented in the classical schemes. Second is the variety of valuation models—historical cost, fair value and hybrid models which affects not only the precision of the depreciation but also the comparability of the financial information across institutions and territories. This is depicted in long-term infrastructure assets, which in most cases need specialized accounting treatments that most organizations do not practice simply because they are dependent on the generalized depreciation models.

In a nutshell, regardless of the fact that international accounting standards provide a fundamental guiding basis, their practical applicability in infrastructure reporting is still scarce. Greater frameworks that offer further insight on asset classification, valuation techniques and full disclosure procedures are urgently needed. Transparency would be improved by mandating the reporting items such as asset type, valuation methods, useful life estimate, depreciation method, and revaluation period. This would contribute towards enhancing accountability and cross border comparability of infrastructure investments.

3.2. Governance, Transparency, and Accountability in Infrastructure Reporting

Accounting forms one of the pillars of promoting transparency and strengthening the infrastructure development governance. As most infrastructure projects involve a substantial amount of public funding, as well as the mobilization of multiple stakeholders, transparent and precise accounting is an essential requirement. It guarantees good records, earns the trust of the people and eases the supervisory processes. Promoting corporate sustainability reporting, facilitated through the comprehensive information systems, Troshani and Rowbottom (2024) claim that such a practice can not only support the environmental and social goals but also foster the transparency and accountability among the stakeholders in the infrastructure projects. Their study emphasizes the reliability of accounting systems needed in aligning the goals of sustainable development with the practice of governance. The use of Public Financial Management (PFM) systems that embrace internationally recognized accounting standards is instrumental in the auditing of infrastructure projects and monitoring their performances. Lombardi, Schimperna and Smarra (2021) conclude that although accounting standards, including the International Public Sector Accounting Standards (IPSAS) give information on the recognition and valuation of infrastructure assets, practical difficulties remain due to inconsistencies in assets classification and measurement. Such inconsistencies foil successful auditing and reduce transparency. Raising the same issue, Ehalaiye, Redmayne and Laswad (2020) disclose that incomplete or cherry-picking reporting of infrastructure assets by local governments may generate moral hazards, particularly in cases of borrowing. They state that precise accounting information is obligatory to make reasonable investment choices and bear accountability at the local level.

Besides, accounting acts as a system of reducing corruption and over-budget in infrastructure projects. The study by Mendoza and Cruz (2020) regarding governance reforms in Philippine infrastructure projects revealed that the implementation of digital innovations and open-data sites has increased transparency but the effectiveness of these initiatives mostly depends on the institutional capacity and political will. On the same note, Yakubu and Muhammed (2020) confirmed a positive correlation between fiscal transparency and road infrastructure quality in Sub-Saharan Africa, thus confirming once again the association between responsible fiscal practices and better road infrastructure performance. Accounting impact on the accountability of stakeholders, including government agencies, donor organizations, and individual investors is also alike. Wagner, de Gooyert and Veene-man (2023) assessed the usefulness of Sustainable Development Goals (SDGs) as a means of accountability by infrastructure organizations in the Netherlands. Although the SDGs provide a practical framework, the researchers observed that standardized accounting is still required to convert high-level policy aspirations into performance results that can be measured. Viana and Moreira (2022) in a complementary analysis explored how state audits affect the public-private part-

nership and suggested that properly established auditing practices, supported with adequate accounting systems, contribute to better transparency and precondition the development of positive reactions of the audited parties, thus, enhancing accountability.

Infrastructure reporting and governance are being transformed by digital technologies too. Alonge, Dudu and Alao (2024) emphasize the opportunities of digitalization in the financial reporting system that enhances transparency and shortens the information dissemination gap and enables real-time supervision, especially in the developing economies. These innovations are critical towards enhancing institutional responsibility and see improved infrastructure outcomes. Srivastava, Iyer-Raniga and Misra (2024) also support the idea of including accounting in infrastructure assessment by proposing complex sustainability assessment models that would support the United Nations Sustainable Development Goals to advance the global standards of accountability. When infrastructure reporting uses sustainability metrics, like in the example provided by Ferrarez et al. (2020), it allows aligning with reporting frameworks, including the Global Reporting Initiative (GRI). Such harmonization would lead to transparency, and cross-sectoral analysis of long-term effects of infrastructure investments. Corazza, Cottafava and Torchia (2023) go further to state that realizing sustainable results in large-scale infrastructural developments requires governance frameworks that are based on effective accounting procedures, and which serve to create a balance of economic, environmental, and social objectives.

With the broadening of the lens to the greater scope of the public sector reforms, Masoud (2025) presents strong evidence that the international accounting standards such as the IPSAS and IFRS can greatly improve the financial transparency and accountability in the infrastructure projects. His analysis highlights the usefulness of these structures in strengthening systems of governance especially when they are subjected to publicity. In line with this argument, Appiah, Onifade and Gyamfi (2022) indicate that governance and institutional infrastructure have a major implication on project delivery in Sub-Saharan Africa. They highlight the purpose of accounting as major promoter of successful implementation of infrastructure and institutional responsibility.

3.3. Infrastructure Investment, Accounting Data, and Economic Decision Making

The accounting information holds the central role in the public policy making and macro-economic policy, particularly the area of infrastructure investment. Khoufi (2020) mentions that reliability and quality of financial disclosure play a major role in increasing investor confidence and encouraging healthy investment practices, especially in emerging economies. The study points out that accounting transparency allows the more efficient deployment of capital to infrastructure-oriented industries, which will assist government planning and implementation of major infrastructure projects. But this highlights a bigger problem, which is the lack of

uniformity between regions in terms of the application of accounting standards. These differences in reporting habits lead to unequal investment results and reveal a core problem in the way coherent global infrastructure governance could be reached.

Henke et al. (2020) built on this and presented a model that considers sustainability in traditional cost-benefit models of assessing road infrastructure projects. Their research example demonstrates that the accounting information may go beyond the conventional financial metrics to capture the environmental and social costs and benefits. Such is a paradigm shift in the role of accounting, accounting up until now has focused on more detailed and integrated assessment tools. However, the authors acknowledge a very important drawback, namely that many existing accounting systems are not yet designed to compute multi-dimensional sustainability assessment. The fixity of the current frameworks displays the necessity of systematic change to incorporate such criteria as default features in the infrastructural decision-making patterns. The explanatory power of digital technologies on financial reporting can be illustrated by the works of Olanrewaju and Dar-amola (2024), who reveal how big data analytics can be used to improve the sustainable management of energy infrastructure immensely. They find that real-time access to financial information allows a quicker feasibility check and budget revision. Nevertheless, variation in the level of technology preparedness particularly among the public sector players in the developing economies is a setback towards the generous adoption of these advancements. It indicates the existence of a significant implementation gap, with the potential advantages of digital accounting tools being not fully realized in settings with no digital accounting infrastructure, technical know-how, or integration possibilities.

Bojorquez-Tapia et al. (2022) discuss how uncertainty plays a role in infrastructure development and how the accounting system should be developed to include probabilistic modelling and scenario analysis. This, they say, is necessary to help manage risk and enhance the results of long-term planning. Their criticism refers to the inadequacy of the static models of accounting that are ill-suited to deal with uncertainty and changing nature of infrastructure projects. Although this is recognized, the challenge is on how to operationalize such dynamic approaches. There is a gap between theoretical developments and practical applications as there are few frameworks or case studies that would offer practical strategies to incorporate adaptive methodologies within currently existing public financial systems. Still, on the social-economic aspects of infrastructure, Zolfaghari et al. (2020) investigate how public investment affects income inequality in Iran. They find that social infrastructure investment may be used to shape those redistributive effects, and that accounting information is vital to track and direct those effects. but the majority of most public accounting structures do not factor in these social results, concentrating on overall economic signs. This shows a stark necessity of accounting mechanisms which will be able to mirror equity and inclusion metrics, at least in a country or countries that are battling with deeply rooted inequities.

Jia et al. (2022) consider the intersection of these two aspects and suggest a multi-criteria decision-making model of infrastructure investment considering fiscal and environmental concerns. Their framework shows the value of accounting information in guiding geographically fair infrastructure rolling out. Nevertheless, the absence of incorporated systems that connect accounting and spatial data is a significant drawback. Lack of such interoperability confines application of these models to theoretical or pilot applications, curtailing their use by public agencies more generally. Seidu et al. (2020) also confirm the macroeconomic usefulness of accounting information through the examination of infrastructure expenditure in the UK. Their study also associates the transparent budgeting of infrastructure with the increase of GDP and creation of jobs, which once again affirms the strategic position of financial reporting in the national building. Such results however assume well-built institutional structures, which do not exist in all jurisdictions in the same measure. This shows a governance gap in the absence of sound public financial management and accountability systems, chances of accounting information to determine effective infrastructure planning is greatly undermined. Providing a more discriminatory perspective, Sobieralski (2021) notes that not all infrastructure has an equal employment impact. His paper emphasizes the relevance of disaggregated accounting data that can be utilized by policy-makers who should be able to compare the economic returns of particular categories of infrastructure. This level of detail is required to support specific resource allocation, but also most national accounting systems cannot carry out this level of granular analysis, which indicates the lack of both technical and institutional capacity in the public finance systems.

Afolabi (2023), in the framework of the digital economy, focuses attention on the strategic role of ICT infrastructure, in particular broadband, in economic development in Africa. He claims that proper financial accounting on these digital enablers is the key to balancing infrastructure investments with long-term development objectives. Nevertheless, the current classification schemes do not always take into account intangible assets and technology-based ones, which makes it difficult to give them a priority in national budgets. This indicates the conceptual deficit in accounting standards. In a complementary study, Clercq et al. (2023) focus on the European situation and claim that the unequal availability of broadband infrastructure is not visible due to poor accounting methods. Their research highlights the importance of introducing region-sensitive accounting changes that could guide infrastructure policies that are fair. Last but not least, Alotaibi et al. (2022) study the phenomenon of railway investment and its implications on accessibility in the region and economic growth. With their finances and performance data, they run an econometric analysis that concludes that long-term infrastructure investment can produce pervasive social-economic gains. However, they also point out a significant weakness: existing financial reporting instruments would rather disregard intangible and long-term impacts, like an increase in accessibility or an improvement in the quality of life. This shows a system-wide gap

in traditional accounting procedures which must change in order to demonstrate that it is fully justifiable to keep investing in infrastructure projects.

The literature review held makes sure that the accounting information is crucial in infrastructure investment, enabling transparency, accountability, and resource allocation efficiency. Nevertheless, all of the findings also reveal some long-standing issues that hamper the effective utilization of accounting information in the field. First, there is a standardization gap created by a lack of consistent enforcement of accounting standards across borders and industries that makes it more difficult to compare and ultimately erodes international policy coherence. Secondly, a methodological gap also exists because most of the accounting systems are currently not able to include such critical variables as the environmental risk, social outcomes, spatial equity, and others. Thirdly, there is a technological discrepancy that restrains the usage of advanced technologies such as big data analytics and real-time reporting, particularly in the areas with insufficient digital infrastructure. Finally, a governance gap also exists; one that is characterized by weak institutions and a lack of oversight that could facilitate the strategic use of accounting information in infrastructure planning.

The gaps have to be closed by an in-depth reform of the systems of public financial management. These comprise the updating of the financial reporting standards to display the multidimensional infrastructure results, investment in digital technology and interoperable platforms, and the fortification of institutional ability to produce data-driven governance. It is only with this kind of coordinated reform that accounting data can become an effective lever to sustainable, inclusive and economically significant infrastructure development.

3.4. Impact of Infrastructure Accounting on Economic Development Outcomes

An emerging empirical literature base highlights the extraordinarily significant role of infrastructure accounting in enhancing economic development outcomes including growth in GDP, creation of employment, and improvement in productivity. The most synthetic contribution is probably the 2023 study by Foster, Gorgulu, Straub, and Vagliasindi of the World Bank, who synthesized the results of both qualitative reviews and meta-analyses of more than four decades of research. All this rich literature assures us that investments in infrastructure, supported by good accounting and financial management, are always associated with better development results. The authors make special note of the fact that such areas as transport, energy, and digital infrastructure are the most closely linked to macro-economic benefits, especially in cases where financial tracking mechanisms and transparent reporting systems become part of the planning and implementation processes. The relation between infrastructure accounting and the economic performance is even stronger in such a country as China. Such a conclusion was strongly supported by the empirical evidence obtained in the study of [Ke, Lin, Fu and Wang \(2020\)](#) through a dynamic panel system-GMM model that transport

infrastructure investment with the help of detailed financial reporting contributes to economic growth significantly. The study finds that the financial frameworks that infrastructure projects are flanked by are of critical importance in dictating the macro-economic effects of such undertakings. An example is the capability to trace the expenditure, effective use of capital, and measuring returns with time is critical in perfecting infrastructure-based growth. Such performance-based evaluation is at best speculative unless there are reliable and transparent accounting systems.

Further, Foster et al. (2023a) also highlight the significance of performance measures in determining the influence of infrastructure on wider socio-economic indicators including labor participation and productivity. What they find suggests a stronger implication, which is that, besides the mere development of the infrastructure, the capability of tracking and assessing its financial payoff depends heavily on the state of accounting practices. Nevertheless, their attempts to establish the connection between infrastructure and development are quite persuasive, though, they frequently consider accounting as a secondary variable. This is indicative of the literature at large, in which the importance of financial reporting is generally recognized though rarely isolated to be empirically studied. Comparative studies bring other nuance to this discussion. Those countries that have an effective public financial management system and standard accounting practices are at a greater position to optimize the benefits of infrastructure. Once more, the Chinese experience, shows how well-organized financial reporting can assist multi-stage and multi-faceted infrastructure development, provide long-term outlook and enable proper cost-benefit analysis. Nevertheless, the comparable results are hardly to be achieved in low-income or institutionally weak states, where the accounting systems tend to be decentralized, non-standardized, or weakly implemented. However, what is missing in the literature is systematic cross-country comparisons quantifying the difference outcomes between strong and weak accounting regimes. That creates a large gap in our knowledge of how the institutional capacity in accounting can mediate the connection between the infrastructure investment and the development of economy. The other problem which emerges through the literature is that less focus has been given to the processes through which accounting information can impact on infrastructure policy choices. Few studies specify what is meant by transparency and fiscal efficiency without explaining the actual mechanisms or devices, whether it be lifecycle costing, return-on-investment dashboards, or depreciation schedules, by which more accountable and informed decision-making will occur. We urgently need studies which disentangle these mechanisms and look at how they are deployed in different administrative situations.

The time aspect of infrastructure investments is also a complex issue that most of the current researches have poorly considered. Infrastructure Investments by their nature have a long lifecycle and the benefits of such investments are reaped only after a number of years or even decades. Nevertheless, a large body of re-

search draws on cross-sectional or short-term panel data, neither of which is capable of picking up the entire curve of infrastructure effects. As a result, it has created a mismatch between the long-term infrastructure assets and short-term accounting frameworks infrastructure assets are commonly measured. Such a time disassociation restricts the usefulness of accounting systems as precise assessment mechanisms throughout the project lifecycle. Collectively, these insights indicate that there are some important gaps in existing literature. The most noticeable is the methodological gap, under which the quality and structure of infrastructure accounting systems are rarely considered as independent variables in empirical research. Rather, the performance of infrastructure is usually measured without the strong analysis of the accounting mechanism of the same. Intimately connected is the comparability gap some high-income or institutionally powerful countries are represented in the literature, but the experiences of countries with poor accounting standards are not studied sufficiently to allow generalization. Also, the mechanism gap: we do not have the detailed case studies which follow the translation of accounting instruments into the improved infrastructure performance. Lastly, it is a gap of time, wherein there is a lack of longitudinal studies that follow the accounting-informed infrastructure effects through time.

Irrespective of these constraints, the literature firmly enthrones a solid theoretical and empirical framework towards acknowledging that infrastructure accounting is one of the forces behind economic development. Accounting systems, when well organized can help governments to align spending to results and assess returns on projects as well as establishing effective allocation of resources. They also help in ensuring fiscal discipline and boost investor confidence as well as enhancing integration of infrastructure planning in national development strategies. To realise this potential fully, however, governments and researchers should invest in more detailed, comparative, and longitudinal studies of the role that infrastructure accounting practices play in development pathways. Further research ought to go beyond generic associations and investigate the particular attributes of accounting systems that cause infrastructure investments to work better. This comprises the review of the uses of financial reporting standards, audit systems, and digital technologies and data integration practices on the economic returns of infrastructure. This kind of approach will not only seal the existing gaps in knowledge but also guide institutional changes geared towards improving the systems of public financial management, especially in those countries where infrastructure investment is most required. In that way, infrastructure accounting would cease to be a background administrative activity and become one of the key elements of national economic development.

3.5. Summary of Findings

The last synthesis used 41 empirical studies released between 2020 and 2025 and covering a wide range of geographical areas and thematic issues. The wide variety of reviewed research was also united by a vast array of methodologies, with 26

studies using quantitative analysis, nine on qualitative approaches, and six on mixed-method frameworks. The central issues discussed in the literature is the effect of infrastructure accounting and its impact on the macro-economic factors like GDP growth, creation of job and improvement of productivity; the role of financial reporting in determining the performance and the returns on investment in infrastructure and the regional variations in accounting practices. As the analysis revealed, there is solid empirical support regards the opinion that properly organized infrastructure accounting is a decisive factor triggering concrete economic development results. One consistency among the studied articles was that strong financial reporting systems have a positive correlation with the high economic performance of infrastructure projects. The quantitative evidence, provided by the econometric models and methods of regression and system-GMM estimations, pointed toward the fact that increased fiscal accountability of infrastructure investment prompts improvements in GDP and the labor market. Qualitative analyses also indicated that the existence of good institutional arrangements, proper governance systems and steady policy provisions plays a prominent role towards financial transparency in the infrastructure management. The features, in their turn, develop investor confidence and make the development projects sustainable. Mixed-method studies also enriched the results obtained linking the financial performance measures to the overall economic outcomes and demonstrated the role of accountability practices in the long-term returns on investment and efficiency improvements.

The cross-regional practice comparison exercise revealed that those countries that had developed an infrastructure accounting system, which was characterized by the existence of such mechanisms as performance budgeting, accrual-based accounting practices, and computer-based audit technologies, were more likely to manage infrastructure assets more efficiently. These nations were more successful in convert Gib investment into economic benefits. As an example, experience in China and other ASEAN countries showed that compliance with high principles in the management of public finances helped ensure the stable economic growth and enhanced the utility of infrastructure. On the other hand, Sub-Saharan African countries and other transitional economies often faced inefficiency and inferior infrastructure performance, as a result of a lack of transparent accounting standards, and institutional stability.

In spite of these promising results, the review has revealed a number of significant gaps in extant literature. Very little research has been performed on the connection between infrastructure accounting and the localized development outcome, e.g. poverty reduction, small business promotion or bridging the regional gaps. The majority of the examined literature focused on traditional industries such as transport and energy, and little attention was paid to the more recent types of infrastructure, especially digital or environmentally sustainable systems. The second emerging and under researched topic concerns the application of the innovative technology, such as blockchain or artificial intelligence, to infrastructure

accounting and reporting procedures, which is currently mostly theoretical with no supporting empirical evidence. The consequences of the study are of particular interest to the stakeholders in the field of public finance, infrastructure development, and economic policy. The results show that strengthening of accounting systems of infrastructure can result in the enhancement of the economic consequence, fiscal administration, and the escalation of the private sector investment in infrastructure. Enhancing transparency and accountability in infrastructure financing is part of the wider goals of developing the economy, effectiveness and fairness. The evidence also highlights the significances of international works on standardisation of accounting practices to facilitate cross border infrastructure investments and economic integration.

However, the review is exposed to some limitations. The search was restricted to the English language publication, which may have omitted some valuable publications in other languages, hence the potential biases according to the regions. In addition, although critical appraisal tools were used firmly, it is possible that certain nuances of methodology, particularly of qualitative research, were missed. The variety of research designs and outcome measures also limited the possibility to conduct a thorough meta-analysis or make statistical conclusions which can be widely generalized. These gaps should be addressed in future research that would analyse the overlap between infrastructure accounting and non-traditional infrastructure sectors, such as climate-smart infrastructure and digital connectivity initiatives. Urgent necessity also exists to study the possibility of using digital innovations to make the financial reporting systems in the sphere of public investment more transparent and efficient. Longitudinal studies which follow infrastructure projects through planning, execution and after would give a deeper insight on the time impact of accounting practices on economic results. Work on these will assist in polishing the existing knowledge and making sure that infrastructure accounting will be developed to serve the needs of future development.

4. Conclusion and Recommendations

The given research aimed to evaluate the impact of infrastructure accounting on major signs of the economic development, such as growth of GDP, creation of jobs, and productivity growth. Through a systematic review of 41 empirical studies published between 2020 and 2025, the study was able to assemble a wide range of academic work that studied the role of financial reporting, transparency, and accounting practices in promoting efficiency and effectiveness of infrastructure investments in various parts of the world. The body of evidence generated in this review was repeatedly referring to the fact that transparent and structured frameworks of infrastructure accounting are a crucial element in the process of delivering macroeconomic performance. Countries which have embraced standardized and quality financial reporting systems are also associated with higher levels of prowess in delivering infrastructural facilities, higher levels of investor confidence and economic systems which are not easily shaken.

The significant contribution of the information that has been researched is the possibility to combine both methodological and regional approaches and provide a balanced vision of the interaction of financial accountability mechanisms and infrastructure-based development. The mixed, quantitative, and qualitative research synthesis presented ample information about the many senses in which accountability and transparency in infrastructure finance can bring about long-term economic gains. The review also revealed serious deficits in current research. In particular, it identified that digital infrastructure accounting is under-researched and microeconomic outcomes including regional development, poverty reduction, and small business development have received little attention. Moreover, the accounting of infrastructure via blockchain and artificial intelligence is a relatively new field that is hardly studied in empirical research. These findings have serious implications to governments, international development agencies as well as financial stakeholders. Enhancement of infrastructure accounting systems also should be regarded as a strategic move that would make public investments effective, improve resource allocation, and give more chances to attracting the private capital. In the case of developing and emerging economies, capacity-building efforts and institutional reforms of the public sector accounting system can assist in enhancing the economic relevance of infrastructure programs. Increasing financial transparency is not just a good governance measure, but it is also necessary to maintain investor confidence and to provide macroeconomic development.

Different directions of future research are also indicated in the study. It causes an emphasis on the necessity of the additional research on digital and climate-resilient infrastructure in the context of accounting. The further insight into the long-term economic impact of infrastructure projects could be gained with the help of longitudinal studies that would follow their development concerning the financial reporting practices. Cross-national comparative research on the innovative technologies' uptake might also provide insight into the effect of these tools on accountability and efficiency. These research gaps are important to develop a more comprehensive understanding of how infrastructure accounting can influence the sustainable development outcomes. To sum up, this study underlines the strong relationship between a good infrastructure accounting and a healthy economic performance. It provides a firm background on rethinking the financing, reporting and monitoring of infrastructure by compile recent empirical research on the topic. Among the policy levers that are most vital in promoting inclusive growth, increasing transparency, and boosting the overall development results, reinforcing accounting systems in the infrastructure sector deserves a special mention, especially when it comes to lower- and middle-income countries.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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