Faculty of Natural and Applied Sciences Journal of Mathematical and Statistical Computing
Print ISSN: 3026-8605, e-ISSN 3043-632X
www.fnasjournals.com
Volume 2; Issue 3; May 2025; Page No. 73-80.
DOI: https://doi.org/10.63561/jmsc.v2i3.859

Education Financing and Infrastructure Delivery in Nigeria: Assessing the Role of Federal Matching Grants for Universal Basic Education Programme

***[1]Aule, M.M., Okwoli, A.A., [1]Jim-Suleiman, S., & [2]Aule, T.T.**
[1]Department of Accounting, University of Jos, Nigeria
[2]Department of Architectural Technology, Federal Polytechnic, Kaura Namoda

***Corresponding author email:** aulemike1@gmail.com

Abstract
This study investigates the effect of the Federal Government Matching Grant (FGMG) on infrastructural development within Nigeria's Universal Basic Education (UBE) programme. Using panel data covering 30 states over 15 years (2009–2023), regression analysis revealed that FGMG exerts a positive and statistically significant impact on infrastructural development ($p < 0.01$). The findings confirm that consistent funding through the matching grant framework is a critical driver of improved educational facilities. However, the relatively modest explanatory power of the model suggests that additional factors such as governance quality, state-level implementation capacity, and community participation also play key roles in shaping infrastructural outcomes Aule et al., (2019). These results align with existing literature emphasising the importance of targeted education financing in reducing disparities and enhancing learning environments. The study recommends improved accountability, more substantial state commitment to counterpart funding, and increased federal allocation to education to maximise the impact of FGMG. It concludes that while the grant is an essential instrument for bridging infrastructural gaps, sustainable development in basic education requires complementary reforms, broader funding sources, and effective collaboration among stakeholders.

Keywords: Federal Government Matching Grant, Universal Basic Education, Infrastructural Development, Education Financing, Nigerian Public Policy

Introduction

Education is universally recognised as the cornerstone of human capital development, national growth, and poverty alleviation. Globally, investments in education are considered pivotal drivers of social transformation and economic competitiveness (Galguera & UNESCO, 2015; Okwoli, 2014). In Nigeria, the Universal Basic Education (UBE) programme, established in 1999 and reinforced by the UBE Act of 2004, was designed to provide free, compulsory, and universal nine years of schooling—six years of primary and three years of junior secondary education. The programme sought to redress long-standing challenges of illiteracy, poor enrolment, and inadequate infrastructure (Adepoju & Fabiyi, 2007). Despite these intentions, UBE implementation has been constrained by underfunding, administrative inefficiencies, and persistent inequalities in access and quality across states (Amadi & Nwogu, 2023). To strengthen UBE, the Federal Government Matching Grant (FGMG) was introduced as a key financial mechanism. Through this scheme, states must provide counterpart funding before accessing federal allocations from the Universal Basic Education Commission (UBEC). This arrangement aims to promote accountability, shared responsibility, and equitable resource distribution (Enu et al., 2016). However, many states fail to consistently provide their counterpart contributions, resulting in under-utilisation of available funds and weak infrastructural outcomes (World Bank Group, 2017).

Against this backdrop, it becomes imperative to empirically assess the role of FGMG in promoting infrastructural development across Nigeria's basic education sector. Such evaluation is critical because while policy frameworks exist, the actual delivery of school infrastructure has been uneven, with some states performing better than others. By focusing on FGMG, this study investigates whether federal allocations significantly influence infrastructural growth across states, offering insights into sustainable education financing. Grounded in resource dependence

Cite this article as:
Aule, M. M., Okwoli, A., Jim-Suleiman, S., & Aule, T. T. (2025). Education financing and infrastructure delivery in nigeria: assessing the role of federal matching grants for Universal Basic Education programme. *FNAS Journal of Mathematical and Statistical Computing*, *2*(3), 73-80. https://doi.org/10.63561/jmsc.v2i3.859

theory (Pfeffer & Salancik, 2015), the study argues that reliance on external funding shapes the ability of states to achieve educational goals. The findings are expected to inform evidence-based recommendations for policymakers, UBEC, and other stakeholders, while contributing to broader debates on equitable financing for basic education in Nigeria.

A robust body of scholarship affirms that government financing is central to educational infrastructure development. Bardhi (2016) demonstrated that matching grants stimulate local participation and bridge funding gaps when states commit to co-financing. Similarly, Adelabu and Rose (2004) highlighted how disparities in governance capacity shape outcomes, with stronger institutions ensuring better utilisation of grants. In the Nigerian context, underinvestment has long been a challenge, with Ubogu and Veronica (2018) noting that national education budgets consistently fall below UNESCO's recommended benchmark of 15–20%. This funding shortfall directly limits states' ability to meet infrastructural demands.

More recent analyses stress that while federal funding is essential, utilisation and accountability determine the extent to which grants translate into tangible facilities. Belay et al. (2024) found that monitoring mechanisms and transparency in resource allocation are decisive for positive infrastructural outcomes. This aligns with global studies showing that sustained investment coupled with governance reforms improves educational equity and quality (World Bank Group, 2017; Okwoli, 2004). The "flypaper effect" further explains that grants tend to "stick where they hit," with subnational governments typically expanding expenditure when external funds are available (Hines & Thaler, 1995). However, mismatches between allocations and actual infrastructure delivery persist in Nigeria, suggesting inefficiencies in fund absorption and project execution (Amadi & Nwogu, 2023).

From a theoretical perspective, the resource dependence framework (Pfeffer & Salancik, 2015) is particularly relevant. It suggests that states' reliance on external grants makes them vulnerable to both policy shifts and internal fiscal constraints. Studies in African contexts indicate that when governance and procurement systems are weak, the benefits of federal transfers diminish, leading to infrastructural backlogs despite significant inflows (Galguera & UNESCO, 2015). Conversely, strong states leverage grants effectively by complementing them with internally generated revenue, donor support, and community participation (World Bank Group, 2017).

In brief, the literature underscores three critical points: first, that adequate funding is indispensable but insufficient without strong governance; second, that disparities in state-level capacity explain variations in outcomes; and third, that matching grants, while valuable, require complementary mechanisms such as performance-based allocations, monitoring, and accountability frameworks. This synthesis establishes the foundation for analysing the role of FGMG in Nigeria's UBE programme.

Materials and Methods

This study employed a structured methodological approach to ensure objectivity, validity, and analytical rigour in examining the influence of federal government funding on the UBE programme in Nigeria. Grounded in the positivist philosophical tradition, the research emphasises empirical observation and quantifiable data. According to scholars, positivism allows for hypothesis testing using statistical tools, which is intended to evaluate the measurable impact of funding on education outcomes (Saunders et al., 2019). This philosophical stance is particularly suitable for studies where the data are drawn from observable and measurable social realities. AbuRaya and Gomaa (2015) also support the view that positivism ensures a value-free, evidence-based investigation that enhances the reliability of findings. Given the historical nature of the funding and education variables under investigation, the study adopted an ex-post facto research design. This design is appropriate for analysing phenomena after they have occurred, allowing the researcher to examine cause-and-effect relationships without manipulating the variables (Nworgu, 2015). It is particularly relevant in educational finance studies where policy outcomes are reviewed retrospectively. As Creswell and Creswell (2017) suggest, ex-post facto designs are valuable when researchers aim to explore correlations in existing datasets and make logical inferences about their impact. The population for this study included all 36 states of Nigeria and the Federal Capital Territory (FCT), totalling 37 entities. However, due to inconsistencies and gaps in available data across some states, purposive sampling was employed to select 30 states with complete and reliable data over the period under review. Purposive sampling enables researchers to select information-rich cases that provide the most valuable data for in-depth analysis (Etikan, Musa, & Alkassim, 2016). This approach ensured that the study's findings were not compromised by data irregularities or missing entries, thus enhancing the validity and generalizability of the results within the selected scope. The data used in the analysis were entirely secondary and were sourced from credible institutions such as the UBEC. These included annual reports, budget releases, funding disbursement documents, and statistical bulletins covering the period from 2009 to 2023. Additional materials were obtained from academic journals and online databases to ensure completeness and accuracy. According to Johnston (2017),

Cite this article as:
Aule, M. M., Okwoli, A., Jim-Suleiman, S., & Aule, T. T. (2025). Education financing and infrastructure delivery in nigeria: assessing the role of federal matching grants for Universal Basic Education programme. *FNAS Journal of Mathematical and Statistical Computing*, *2*(3), 73-80. https://doi.org/10.63561/jmsc.v2i3.859

secondary data are especially valuable in policy research, as they offer a cost-effective and comprehensive means of exploring long-term trends and institutional decisions. To analyse the data, the study employed panel regression techniques using E-Views version 10.0. Both fixed and random effects models were estimated to explore the relationship between federal funding and educational indicators. The Hausman specification test was used to select the more efficient and consistent model, following Osuji and Amughoro (2024). Diagnostic tests, including the Jarque-Bera normality test, variance inflation factor (VIF) for multicollinearity, and the Breusch-Pagan LM test for serial correlation, were also conducted to ensure the underlying assumptions of the regression model were not violated. These statistical procedures provide robust evidence for validating the results and ensuring their reliability for policy inference.

Results

Matching Grant and Productivity

The data used for the analysis in this study are aggregated Federal Government Matching Grants (FGMG) and Infrastructural Development (ID) for each state over 2009–2023. It assessed (i) "top financed" states by total FGMG received and (ii) "productivity" as total ID delivered per unit of FGMG (ID/FGMG), a standard way to proxy the number of projects per naira of grant where project counts are unavailable. By cumulative finance, the top recipients are Kebbi, Nasarawa, Kano, Sokoto, and Anambra. These states together account for a substantial share of the period's grants, consistent with the logic of intergovernmental transfers that allocate sizable resources to subnational governments to expand basic services (Oates, 1999; Shah, 2007). High receipts are also compatible with the "flypaper effect," whereby transfers tend to stick where they hit and translate into higher public outlays than equivalent local revenue (Hines & Thaler, 1995).

On outcomes, the states with the highest ID/FGMG ratios—hence, the most "projects per finance" on this proxy—are Ondo (~1.42), Enugu (~1.14), and Jigawa (~1.05), followed by Ekiti and Katsina (≈0.98–0.97). Ratios above one (e.g., Ondo and Enugu) imply that, over the window, recorded infrastructure spending exceeded federal matching inflows, indicating effective leveraging of other sources—state budget top-ups, carry-overs, or donor contributions—to convert grants into tangible facilities (Shah, 2007; World Bank Group, 2017). Jigawa's strong ratio aligns with evidence that predictable, rules-based transfers can crowd-in subnational effort and improve service delivery when governance and implementation capacity are adequate (Galguera & UNESCO 2015; World Bank Group, 2017). Conversely, some high-grant states show lower conversion ratios, underscoring that volume alone is not sufficient; institutional capacity, procurement quality, and accountability mechanisms mediate how grants translate into classrooms, furniture, and water/sanitation assets (Galguera & UNESCO 2015; UBEC, 2008).

These patterns have practical implications for federal authorities and UBEC; the dispersion in ID/FGMG suggests space to incentivise performance—e.g., strengthening the matching design with performance conditions or technical support to lagging states (Shah, 2007). For state SUBEBs and LGEAs, high-performing states provide peer benchmarks on planning, timely counterpart funding, and efficient contracting. For citizens and development partners, the results emphasise that transparency on project pipelines and completion reporting can amplify the grant's infrastructure yield (World Bank Group, 2017).

In brief, the analysis of Appendix A shows that Kebbi, Nasarawa, Kano, Sokoto, and Anambra are the top five financed states, reflecting the intergovernmental transfer logic and the "flypaper effect," where grants significantly increase local spending. In terms of productivity, Ondo, Enugu, Jigawa, Ekiti, and Katsina achieved the highest infrastructure-per-finance ratios, with Ondo and Enugu even exceeding federal inflows through effective leveraging of additional resources. These findings imply that while finance volume is essential, institutional capacity, accountability, and peer benchmarking are crucial for translating grants into tangible infrastructure outcomes.

Data Reliability and Trustworthiness

The regression results in Table 1 reveal that Federal Government Matching Grants (FGMG) exert a positive and statistically significant effect on infrastructural development in basic education across Nigeria. This finding aligns with the argument of the World Bank Group (2017) that education financing, particularly through targeted government grants, plays a pivotal role in improving school infrastructure, access, and quality. The significance of the FGMG variable ($p < 0.01$) suggests that consistent and adequate funding directly translates into better learning environments, which is supported by Galguera and UNESCO (2015), emphasising the need for sustained public investment in education infrastructure as a prerequisite for quality delivery.

Despite the positive relationship, the model's relatively low explanatory power ($R^2 = 0.122$) highlights that other factors beyond federal matching grants are critical to infrastructural outcomes. This result is consistent with Adelabu and Rose (2004), who argued that while federal grants are essential, the effectiveness of infrastructural

Cite this article as:
Aule, M. M., Okwoli, A., Jim-Suleiman, S., & Aule, T. T. (2025). Education financing and infrastructure delivery in nigeria: assessing the role of federal matching grants for Universal Basic Education programme. *FNAS Journal of Mathematical and Statistical Computing, 2*(3), 73-80. https://doi.org/10.63561/jmsc.v2i3.859

development also depends on state-level implementation capacity, governance structures, and accountability mechanisms. Furthermore, the significance of the constant term demonstrates that baseline conditions such as internally generated revenue, community support, and donor interventions remain crucial drivers of infrastructural growth (Belay et al., 2024).

Table 1: Preliminary checks for data reliability and trustworthiness

Dependent Variable: ID				
Method: Panel Least Squares				
Sample: 2009 - 2023				
Periods included: 15 years.				
Cross-sections included: 30				
Total panel (balanced) observations: 449				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
FGMG	0.103619	0.021443	4.832316	0.0000
C	8.86E+08	54776383	16.16779	0.0000
	Effects Specification			
Cross-section fixed (dummy variables)				
R-squared	0.122323	Mean dependent var		1.03E+09
Adjusted R-squared	0.059482	S.D. dependent var		9.94E+08
S.E. of regression	9.64E+08	Akaike info criterion		44.27830
Sum squared resid	3.90E+20	Schwarz criterion		44.56138
Log likelihood	-9931.618	Hannan-Quinn criterion.		44.38988
F-statistic	1.946552	Durbin-Watson stat		1.662044
Prob(F-statistic)	0.002413			

The inclusion of cross-sectional fixed effects strengthens the model by controlling for variations across states, as differences in educational advancement, demographic pressures, and policy priorities can affect outcomes. This position is supported by Ololube (2016), who notes that disparities in educational investment across Nigerian states often shape the extent of infrastructural development.

In brief, the reliability of the regression results lies in their confirmation of the positive role of FGMG in enhancing infrastructure, a finding strongly backed by existing literature. Nonetheless, to strengthen the predictive capacity, further studies should incorporate additional determinants such as local government contributions, international donor support, and socio-economic indicators.

Matching Grant and Infrastructural Development

The regression analysis presented in Table 2 provides compelling evidence to accept the alternative hypothesis that Federal Government Matching Grants (FGMG) significantly affect infrastructural development in Nigeria's UBE. The coefficient of FGMG is 0.1084, indicating a positive relationship between grants and infrastructure improvements. Importantly, the p-value associated with this coefficient is 0.0000, well below the 1% significance level, thereby confirming strong statistical significance. This finding aligns with the view of the World Bank

Cite this article as:
Aule, M. M., Okwoli, A., Jim-Suleiman, S., & Aule, T. T. (2025). Education financing and infrastructure delivery in nigeria: assessing the role of federal matching grants for Universal Basic Education programme. *FNAS Journal of Mathematical and Statistical Computing*, *2*(3), 73-80. https://doi.org/10.63561/jmsc.v2i3.859

Group (2017), which emphasises that consistent financial inputs into education are critical for enhancing infrastructure and learning outcomes in low- and middle-income countries.

Table 2: FGMG affect infrastructural development in Nigeria's UBE program

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FGMG	0.108423	0.021012	5.160101	0.0000
C	8.79E+08	55880732	15.72576	0.0000
R-squared	0.506069		Mean dependent var	9.96E+08
Adjusted R-squared	0.453962		S.D. dependent var	9.92E+08
S.E. of regression	9.65E+08		Sum squared resid	4.17E+20
F-statistic	26.61113		Durbin-Watson stat	1.560373
Prob(F-statistic)	0.000000			

The model's explanatory power further supports this finding. With an R-squared of 0.506, the regression demonstrates that over 50% of the variation in infrastructural development is explained by FGMG. This finding is a relatively strong result in social science research, where multiple factors often influence educational outcomes. Galguera and UNESCO (2015) argue that government expenditure is a vital driver of infrastructure expansion and service delivery in education, reinforcing the interpretation that matching grants are a significant determinant of infrastructural growth. The significance of the F-statistic (26.61, $p < 0.01$) also validates the overall model, suggesting that FGMG is not only individually significant but also jointly significant in predicting infrastructural development.

These results are consistent with earlier studies. Adelabu and Rose (2004) found that targeted funding mechanisms reduce regional disparities in education provision and promote equitable access. Similarly, Belay et al. (2024) demonstrated that increased public expenditure positively impacts infrastructural development in Nigerian schools, though they cautioned that effective utilisation of funds is critical for sustained impact. The significance of FGMG in this study resonates with these findings, confirming that financial resources provided by the federal government act as strong catalysts for improving educational infrastructure. Thus, the inferential results justify the acceptance of the alternate hypothesis: Federal Government Matching Grants significantly affect infrastructural development in the Nigerian UBE program.

Discussion

The findings from this study collectively demonstrate that the Federal Government Matching Grant (FGMG) plays a pivotal role in infrastructural development within Nigeria's Universal Basic Education (UBE) programme. Evidence from Content 1 and Content 2 confirms that the alternate hypothesis was accepted, as FGMG exhibited a statistically significant and positive effect on infrastructural growth. Regression analysis revealed that the grant variable was essential at the 1% level ($p < 0.01$) with explanatory power exceeding 50% in some models ($R^2 = 0.506$), confirming that higher access to FGMG translates directly into improved school infrastructure. This result is consistent with global perspectives that sustained government funding is indispensable for enhancing the quality of educational delivery (Galguera & UNESCO, 2015; World Bank Group, 2017).

Analysis of Table A1 further contextualises this finding. The top-financed states, such as Kebbi, Nasarawa, Kano, Sokoto, and Anambra, received the highest cumulative grants, underscoring the federal government's role in equalising resources across regions. However, the analysis also revealed variations in productivity, with states such as Ondo, Enugu, and Jigawa achieving the highest infrastructure-to-finance ratios. Ratios above one imply that some states effectively leveraged additional resources—through state budgets, donor support, or efficient fiscal management—to deliver more infrastructure per unit of grant. This highlights the importance of governance capacity and commitment in optimising grant utilisation, echoing Adelabu and Rose's (2004) assertion that while funding is vital, its impact is mediated by accountability structures.

Cite this article as:
Aule, M. M., Okwoli, A., Jim-Suleiman, S., & Aule, T. T. (2025). Education financing and infrastructure delivery in nigeria: assessing the role of federal matching grants for Universal Basic Education programme. *FNAS Journal of Mathematical and Statistical Computing*, *2*(3), 73-80. https://doi.org/10.63561/jmsc.v2i3.859

For stakeholders, these findings hold several practical implications. For people—particularly learners—the positive relationship between grants and infrastructure translates into improved access to classrooms, furniture, and sanitation facilities, which are essential for quality learning environments. For the government, the results justify sustaining and possibly scaling up grant-based financing mechanisms, as they address regional disparities in resource allocation. For UBEC and state-level administrators, the variation in productivity across states underscores the need for stronger monitoring frameworks and technical support to ensure effective utilisation of grants. This result aligns with Bardhi's (2016) findings on rural development financing and Ogundele et al.'s (2019) emphasis on grants as critical drivers for UBE implementation.

The findings also resonate with resource dependency theory, which posits that external funding sources shape institutional capacity. In this case, federal transfers significantly influence states' ability to expand infrastructure, thereby supporting broader societal development goals. Conversely, the results challenge studies such as Ubogu and Veronica (2018) and Enu (2016), who questioned the effectiveness of federal education spending in addressing infrastructural gaps. The divergence suggests that while national-level funding is significant, state-specific governance and absorptive capacity critically determine outcomes (Ololube, 2016).

Despite these robust insights, limitations exist. The relatively low explanatory power in one of the models (R^2 = 0.122) indicates that other factors—such as internally generated revenue, donor participation, and community engagement—also play essential roles in shaping infrastructural outcomes. Moreover, the study did not disaggregate how funds were distributed across infrastructure types (classrooms, laboratories, ICT facilities), which may mask critical sectoral differences.

Future research should therefore broaden the scope to include complementary variables such as governance effectiveness, accountability systems, and international donor contributions. Comparative state-level analyses would also provide insights into why some states achieve higher productivity with grants than others, offering lessons for best practices and peer benchmarking.

In brief, this study affirms that the FGMG has had a positive and significant impact on infrastructural development within Nigeria's UBE programme. For policymakers, education administrators, and communities, the findings emphasise the need not only for sustained federal funding but also for strengthened accountability mechanisms to ensure equitable and sustainable educational development.

Conclusion

This study examined the effect of the Federal Government Matching Grant (FGMG) on infrastructural development within the Nigerian UBE programme. The findings established that the matching grant significantly contributes to infrastructural development in basic education across states, confirming the alternate hypothesis. The positive and significant relationship indicates that the UBE financing framework has the potential to enhance educational outcomes when states effectively access and utilise the funds. However, disparities in state participation, inadequate accountability, and insufficient budgetary allocations continue to hinder the optimal impact of the programme. These outcomes underscore the importance of strengthening funding mechanisms and ensuring equitable utilisation of grants. Theoretically, the findings affirm the relevance of the resource dependence perspective, which highlights the role of external resources in shaping institutional outcomes. Practically, the study demonstrates that the FGMG remains a vital mechanism for addressing infrastructural gaps in Nigeria's basic education. Nevertheless, the persistent challenges of underutilisation and mismanagement suggest the need for renewed policy focus and stronger implementation strategies. While the Federal Government Matching Grant has demonstrated a significant effect on infrastructural development, maximising its potential requires robust policy reforms, stronger intergovernmental collaboration, and sustained investments in education. By addressing these challenges, Nigeria can strengthen its UBE programme, bridge educational inequalities, and foster inclusive national development.

Recommendations

It is therefore recommended that:

i. The state governments should prioritise the timely provision of their counterpart funds to ensure full access to federal allocations. This will guarantee consistent financing for infrastructural projects across the federation.

Cite this article as:
Aule, M. M., Okwoli, A., Jim-Suleiman, S., & Aule, T. T. (2025). Education financing and infrastructure delivery in nigeria: assessing the role of federal matching grants for Universal Basic Education programme. *FNAS Journal of Mathematical and Statistical Computing*, *2*(3), 73-80. https://doi.org/10.63561/jmsc.v2i3.859

ii. The UBEC and relevant monitoring agencies should strengthen auditing mechanisms, publish periodic reports on fund utilisation, and enforce sanctions on states that mismanage grants. This will build public trust and ensure resources achieve intended outcomes.
iii. The Federal Government should raise its expenditure on education to meet the UNESCO-recommended benchmark of 15–20% of national budgets, thereby expanding the pool of funds available for infrastructural development.
iv. Other stakeholders, including UBEC and state education boards, should invest in training administrators on effective project management, financial accountability, and sustainable infrastructure maintenance.
v. Local communities should be actively involved in monitoring school projects to enhance transparency, ensure quality, and promote ownership of educational infrastructure.
vi. Future studies should adopt longitudinal designs to track the long-term impact of FGMG on infrastructural development, while also exploring how political, economic, and governance variables mediate the relationship between funding and educational outcomes.

References

AbuRaya, R., & Gomaa, Y. A. (2020, December). Philosophical assumptions, methodological choices and research design: E-learners versus non e-learners. In *2020 Sixth International Conference on E-Learning (Econf) (pp. 374-380)*. IEEE.

Adelabu, M., & Rose, P. (2004). Non-state provision of basic education in Nigeria. Nigeria: Study of non-state providers of basic services, 41-73.

Adepoju, A., & Fabiyi, A. (2007). Universal basic education in Nigeria: Challenges and prospects. Enu, D. B., Ema, E., & Esu, A. E. O. (2016). Accessing matching grants and the implementation of UBE policy in Cross River State, Nigeria. *Journal of Education and Practice*, 7(2), 85–92. https://eric.ed.gov/?id=EJ1089772

Amadi, U. V., & Nwogu, U. J. (2023). The impact of funding on educational development in Nigeria. *Journal of Education in Developing Areas*, 31(3), 61-82.

Aule, T. T., Moh'd Jusan, M. Bin, & Ayoosu, M. I. (2019). Outcomes of community participation in housing development: An update review. International Journal of Scientific Research in Science, Engineering and Technology, 6(6), 208–218. https://doi.org/10.32628/ijsrset196642

Bardhi, R. (2016). The matching grants instrument: An Effective Way for rural development. *European Journal of Physical and Agricultural Sciences* Vol. 4(2).

Belay, T., Chugunov, D., Dahal, M., De Simone, M. E., Gafar, A., Isser, D., ... & Pradhan, E. (2024). Human capital, public expenditure and institutional review: An analysis of financing and governance constraints for the delivery of basic education and primary health care in Nigeria. *World Bank.*

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approach*. Sage publications (5th ed.). SAGE Publications.

Damodar, N. G. (2021). *Basic econometrics*. McGraw-Hill Education.

Enu, D. B. (2016). Social Educators' Contribution in Educating for Peace and Security in Nigeria. *Journal of Education and Practice*, 7(36), 97-103. www.iiste.org

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1–4. https://doi.org/10.11648/j.ajtas.20160501.11

Hines Jr, J. R., & Thaler, R. H. (1995). Anomalies: The flypaper effect. *Journal of Economic Perspectives*, 9(4), 217-226. https://doi.org/10.1257/jep.9.4.217

Johnston, M. P. (2017). Secondary data analysis: A method of which the time has come. *Qualitative and Quantitative Methods in Libraries*, 3(3), 619–626.

Galguera, M. P. & UNESCO (2015). Education for all 2000-2015: Achievements and Challenges. EFA Global Monitoring Report 2015. Paris, France. Publication by the United Nations Educational, Scientific and Cultural Organisation. 499 pp. ISBN-978-92-3-10085-0. *Journal of Supranational Policies of Education*, (3)

Nworgu, B. G. (2015). *Educational Research: Basic Issues and Methodology* (3rd ed.). Enugu: University Trust Publishers.

Oates, W. E. (1999). An essay on fiscal federalism. *Journal of Economic Literature*, 37(3), 1120-1149. https://doi.org/10.1257/jel.37.3.1120

Ogundele, A. R., Ogunniran, M. O., & Abanikannda, M. (2019). Challenges of educational technology and adequacy of trained educators for the implementation of universal basic education (UBE) program in

primary schools: a case of Ondo state, Nigeria. *International Journal of Social Science English Literature*, 3, 12-25. Doi: 10.20448/journal 527.2019.31.12.25

Okwoli, A. A. (2014). Nigerian educational system: Meeting the human capital needs. In A paper presented at the second (2nd) induction and national workshop of the Chartered Institute of Human Capital Development in Nigeria at the conference hall of the office of the secretary to the government of the federation, Abuja, May (Vol. 23).

Okwoli, A. A. (2004). Towards probity, accountability and transparency in revenue generation in the Nigerian public sector. *Nigerian Journal of Accounting Research*, 1(1), 1-9.

Ololube, N. P. (2016). Education fund misappropriation and the politics of budget implementation in Nigeria. *International Journal of Scientific Research in Education*, 9(4), 333–349. https://www.ijsre.com

Osuji, C. C., & Amughoro, G. M. (2024). Comparative Analysis of Financial Mix and Financial Performance of Listed Firms in Nigeria. https://doi.org/10.56201/wjimt.v8.no1.2024.pg13.34

Pfeffer, J., & Salancik, G. (2015). External control of organisations—Resource dependence perspective. In *Organisational Behaviour 2* (pp. 355-370). Routledge.

Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students*. Pearson Education.

Shah, A. (Ed.). (2007). *Participatory budgeting*. World Bank Publications.

Ubogu, R. E., & Veronica, M. O. (2018). Financing education in Nigeria: implications and options for national development. *World Journal of Educational Research*, 5(3), 227-239.

World Bank Group. (2017). Learning to realise education's promise. International Bank for Reconstruction and Development/The World Bank.

Cite this article as:
Aule, M. M., Okwoli, A., Jim-Suleiman, S., & Aule, T. T. (2025). Education financing and infrastructure delivery in nigeria: assessing the role of federal matching grants for Universal Basic Education programme. *FNAS Journal of Mathematical and Statistical Computing*, *2*(3), 73-80. https://doi.org/10.63561/jmsc.v2i3.859