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Challenges and Remedies for Research Investment in Tertiary Institutions: Insights from Nigeria

Tantangan dan Upaya untuk Investasi Riset di Institusi Pendidikan Tinggi: Wawasan dari Nigeria

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Abstract

In this study, we investigate the factors contributing to the inadequate investment in research programs within Nigerian tertiary institutions. Employing secondary data from both printed and online sources, we identify key issues such as the lack of political commitment in implementing research funding policies, declining national revenue, corruption, security concerns, limited private sector involvement, competition from other economic sectors, revenue source limitations, and high debt servicing as primary drivers of this problem. To address these challenges, our recommendations include the implementation of research funding policies, economic diversification, the establishment of effective monitoring and evaluation mechanisms for research funds, the creation of additional sources of research funding, and greater private sector engagement in supporting research endeavors across the nation. This study provides valuable insights into the challenges faced by the Nigerian higher education sector in fostering research excellence and offers practical solutions to enhance research investment for sustainable development.

Highlights:

- Inadequate Funding: Insufficient financial support hinders research program growth.
- Political Will: Lack of commitment from policymakers affects research funding policy implementation.
- Private Sector Engagement: Greater involvement of private industries can boost research investment in Nigeria's tertiary institutions.

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INTRODUCTION

Research according to Bako [1] is a systematic search and investigation for increasing the sum of knowledge; and research and development (R&D) as the search and application of this knowledge for the development of improved products, services and industrial processes of capital development. Research is seen by Ajoku [2] as the search for knowledge, truth, similarities and relationships, and finding solutions to problems through the systematic collection, analysis and interpretation of data while observed that research is an activity that involves observation and description of the characteristic properties of objects or events for the purpose of discovering relationships between variables and developing generalization that may be used to predict future occurrences. Research involves identification of problems, gathering new data, finding solution to a problem through carefully designed procedures and logical analysis.

Research therefore is an intensive and extensive search for solutions to problems in a society. Research is oriented towards the discovering of the relationships that exist among the phenomena of the world in which we live. For research is a tool for human capital development, while research is the process of arriving at dependable solutions to problems through planned and systematic collection, analysis and interpretation of data. Human capital development is the process of acquiring and increasing the number of persons who have the skills, education and experience which are critical for economic and political development of a country.

METHODS

Research programme is a national programme because of its importance to socio-economic development and technological advancement to the country. Research are carried out in a well advance public or private institutions globally and it is one of the cardinal goals of tertiary institutions....submitted that research are both carried out and conducted in both tertiary institutions, which comprised Universities, Polytechnics, Monothechnics and Colleges of Education. The academic staffs of these institutions are compulsorily required to carry out research activities as their promotions are primarily based on their research outputs. Apart from the academic staff being promoted through research publications, research activities enhance their credibility, status, and also add value both to their immediate community and the larger global community. The various form of research in tertiary institution include;

(i) Individual research:

This is initiated and conducted by an individual researcher or a team of researchers who may seek funding from the University Board of Research or from alternative funding agencies, including international organisations, NGOs and the private sector.

(ii) Institutional research:

This is initiated and supervised by the institution or a unit of the institution (faculty, department etc) and usually involves a team of researchers. Funding is internal, except where assistance is obtained from external sources.

(iii) Commissioned or contractual research:

This is carried out at the instance of an external body, which may be government or a government organ, the private sector, NGOs etc, which also funds the research. The sponsor has right of ownership of the research results.

(iv) Collaborative research:

This is a joint research effort with common objectives or goals and involving the sharing of ideas, methodologies, facilities etc between individual researchers or research teams, from same or different institutions, organisations, countries or regions of the world.

(v) Student research:

This is an undergraduate or postgraduate research project undertaken by a student, supervised by the student's department, and the results of which are reported in student's thesis or dissertation. Student research is usually jointly funded between the student himself (or his sponsor) and his department.

Asserted that research is regarded as the second most important part of the academic programme after the theoretical background [2]. They are carried out to advance the social, economic and technological development of their immediate community and society at large; research is conducted by both staff and students in the university system. Students do their research work as part of their academic programme while staff do research based on their individual interests and specialisations. Academic research enhances the intellectual base of researchers while also priming them for promotions and societal recognition. Because of the significance of research, universities are expected to invest heavily on research and conduct research on pressing society challenges.

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Research institutes are institutions established purposely for the execution of research activities. Research institutes are organization saddled with the responsibilities of carrying out research for the advancement of technology and other related social, political and economic issues [3]. The main purpose of Research institutes in Nigeria according to carry out research. Thus, research institutes in Nigeria improve and increase the knowledge available about the specific research project as well as broaden the possibilities of how to utilize that knowledge to the best advantage.

Roles of Research institutes in Nigeria according to includes; research institutes are crucial partners for supporting the innovation activities of businesses, especially SMEs. Research institutes in Nigeria provide important impulses for the development of new products and cooperate in nearly every stage of the innovation process. Research institutes in Nigeria help to create or expand the curriculum of social or scientific methodology. Research institutes all over Nigeria are part of an active community of institutions that share values, foci, and missions.

These are the 69 Research Institutes in Nigeria and they include

(1) Agricultural Research Council of Nigeria (ARCN) (2), Agricultural Rural Management Training Institute (ARMTI), Ilorin, (3) Animal Health Research Institutes (4) Animal Production, Fisheries and Oceanography Research Institutes, (5) Arable Crops Research Institutes, (6) Center for Energy Research and Development, (7) Centre for Energy Research and Training, (8) Centre for Management Development, (9) Cocoa Research Institute of Nigeria, Ibadan (10)Energy Commission of Nigeria (ECN) (11), Federal College of Freshwater Fisheries Technology, New Bussa (12)Federal Institute of Industrial Research (FIIRO), Oshodi, Lagos, (13) Federal Ministry of Agriculture (14) Federal Ministry of Science and Technology (FMST), (15), Federal Ministry of Water Resources (16), Forestry Research Institute of Nigeria (FRIN), Ibadan (17) Forestry, Horticulture and Tree Crops Research Institutes (18) Institute for Advanced Medical Research and Training, (19) Institute for Agricultural Research (IAR), (20) Institute of Agricultural Research & Extension Services, ABU, Zaria (21)Institute of Agricultural Research & Training, Obafemi Awolowo University, Ibadan (22) Institute of Archaeology and Museum Studies, (23)Institute of Chartered Chemists of Nigeria (ICCON), (24) Institute of Child Health (25) Institute of human virology, (26) Institute of Operations Research of Nigeria (INFORN), (27)International Institute of Tropical Agriculture (IITA), (28) International Livestock Research Institute (29) Lake Chad Research Institute (LCRI) (30) Medical research institutes in Nigeria (31)National Agency for Food and Drug Administration and Control (NAFDAC) (32)National Agency for Science & Engineering Infrastructure (NASENI), Abuja (33)National Agricultural Extension Research and Liaison Services (AERLS) (34) National Animal Production Research Institute, Zaria (35) National Center for Agricultural Mechanization(36) National Center for Energy Research and Development(37) National Center for Technology Management(38) National Centre for Genetic Resources and Biotechnology (NACGRAB) (39)National centre for Technology Management (40) National Cereals Research Institute (NCRI) (41) National Horticultural Research Institute (NIHORT) (42), National Institute for Pharmaceutical Research and Development (NIPRD) (43)National Institute of Freshwater Fisheries Research, New Bussa(44)National Institute of Pharmaceutical Research and Development (NIPRD) (45) National Research Institute for Chemical Technology (NARICT) (46) National Root Crops Research Institute, (47) National Space Research and Development Agency (NASRDA),(48)National Veterinary Research Institute (NVRI, (49)Nigeria Institute of Science Laboratory (NISLT),(50) Nigerian Academy of Science, (51), Nigerian Building and Road Research Institute (NBRRI), (52), Nigerian Educational Research Council, (53) Nigerian Institute for Oceanography and Marine Research (NIOMR), (54), Nigerian Institute for Oil Palm Research (NIFOR), (55) Nigerian Institute for Trypanosomiasis Research (NITR), (56), Nigerian Institute of Food Science and Technology, (57), Nigerian Institute of Medical Research (NIMR), (58), Nigerian Institute of Social and Economic Research (59) Nigerian Stored Products Research Institute (NSPRI) (60) Projects Development Institute (PRODA) (61), Raw Materials Research and Development Council (RMRDC), (62), Research Institutes organisations in Nigeria (63), Rubber Research Institute of Nigeria (RRIN) (64), Scientific Equipment Development Institute (SEDI-E), (65), Sheda Science and Technology Complex (66), Social Sciences Academy of Nigeria(67), Sokoto Energy Research Centre (SERC(68), The Nigerian Institute of Medical Research and (69) Unilorin Sugar Research Institute (USRI).

Adequate funding is a life wire of any research programme implementation in tertiary institutions. Adequate funding is critical to the development of research programme. Noted that the availability of funds plays a significant role in determining the provision of quality research programme in the various research institutes at all levels [4]. The quantity of funds made available during budgeting will go a long way in improving on the quality of research programme in the various research institutes in Nigeria. Adequate funding will be of importance in the advancement of science and technology in Nigeria.

The government is one of the major sponsors of research in both developing and developed countries of the world. Funding of research programme is one of the major functions of the government at both the federal and state levels. This is done through the preparation of annual budget for meeting the needs of the various sectors of the economy including ministry of science and education. The agencies that fund and manage research activities in Nigerian tertiary institutions include; TETFund, Petroleum Technology Development Fund (PTDF), Nigeria National Petroleum Corporation (NNPC), Ministry of Science and Technology, Ministry of Education, and National Universities Commission (NUC). Other include private institutions, international organizations and religious institutions [5].

Research votes from the National Universities Commission (NUC) are not disbursed regularly, and when disbursed, are often grossly inadequate to cater for the research needs of the large number of public universities in the country [6]. Poor funding of research programme by the government have negatively affected the development of research programmes IN Nierian tertiary institutions [7].

To ensure full development of research programme, the National Professional Standards for Teachers (NPST) recommended 5% of the gross national income (GNP) to be set aside for research. Observed that many developed and developing countries

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across the globe have started the implementation of the research policy funding as recommended for past years and some even exceed its by allocating more than the recommendation [8].

Literatures available indicated that Nigeria's government only spends about 0.0.5% of its total national budget on research maintained that Nigeria is currently one of the countries with the lowest health research funding in the world [9]. It contributes 0.22% of Its GDP to research. The budget for research was N5bn (\$9.9mn) in 2019 under the National Research Fund. It was raised to N7.5bn (\$14.85mn) in 2020 and is still the same this year. It is to this fund that N1bn (\$1.98mn) has just been added. Also, Comparing Nigeria's annual spend on its Agric research institutes with that of India's \$2 billion, Brazil's \$1 billion and China's \$700 million, shows that research is still grossly underfunded in the country. Similarly, a 2015 ActionAid report, states that for every \$100 of agricultural output, Nigeria invests only \$0.42 into agricultural research, as compared to \$0.94 and \$1.40 in Ghana and Uganda respectively [10]. Also, Research indicated that sub-Saharan African countries contribute of their gross domestic product (GDP) to research, compared to Europe, Asia, and North America that contribute 27%, 31%, and 37%. Nigeria contributes 0.22%, one of the lowest in the world.

Also stated that though it has been recommended that five per cent of the gross national product be set aside for research, the federal university system spends only 1.3 per cent of its budget on research [11]. Lamented that research in Nigerian institutions is not given the priority it deserves because of poor funding of the education sector [12]. Funding of universities generally and research, in particular, is inadequate. This condition partly accounts for lecturers' inability to access research fund. It is very importance to critically examine factors responsible for poor investment in research programme in Nigeria.

RESULTS AND DISCUSSION

Barriers to Research Funding in Nigeria

There are many barriers to effective investment in tertiary education programme in Nigeria. Some of these barriers includes; lack of political will to implement funding policy on research, fall in national revenue, corruption, insecurity problems, poor contribution from private institutions, competition from other sectors of the economy, nature of sources of revenue and high debt servicing.

Lack of political will to Implement Funding Policy on Research

Lack of political will to implement funding policy on research by Nigerian government has also affected investment in research programme in Nigeria. In order to ensure development of research programme, 0.5% of the national budget was recommended to be allocated annually to research programme of every country across the by Teachers (NPST). Due to lack of political will from the Nigeria government to allocate the 0.5% annually have reduced investment in research programme. The Nigerian government for the past decade have failed to implement the international recommendation funding policy of research and this had resulted to underfunding of this sub-sector of the economy. Described Nigerian government have no interested in the research development and that is the reason for limited allocation to the sector [13]. For instance, budgetary allocation for national assembly have been on increase for the past ten years while promising and lucrative sector like research which have capacity to transform the entire country if well managed and funded is left to suffer funding.

Fall in National Revenue

Revenue shortfall is a situation whereby the projected revenue of a country and state fell below expected planned revenue within a year. Revenue shortfall occurs when the expected revenue fell below the projected revenue in a calendar cycle [14]. The Nigerian economy according to revenue shortfall [15]. National Bureau of Statistics (NBS) showed that the average retail price of Automotive Gas Oil (Diesel) paid by consumers in Nigeria increased by 181 percent from N238.82 in May 2021 to N671.08 recorded in May 2022. On a month-on-month basis, the average retail price increased from N654.46 in April 2022, indicating a rise of 2.54 percent compared to the average retail price paid in May 2022. The rising cost of diesel is partly due to the Russia-Ukraine conflict. The economic sanctions imposed on Russia, a leading oil producer in the international market, have disrupted the global distribution chain for crude oil. The Federal Government recorded a revenue shortfall of N15tn from 2015 to 2020 according Orjiude (2021a) indicated that the revenue shortfall led to a funding gap of N3.75tn in the implementation of capital projects for Ministries, Departments, and Agencies, according to an analysis of the budgetary provisions and budget implementation reports from the Budget Office of the Federation. The document indicated that the total revenue projection for the six years was N31.9tn, while about N16.9tn was generated, resulting in a shortfall of N15tn. The total revenue allocated for capital projects in the period under review was N11.9tn, while the actual amount released to the MDAs was estimated at N8.2tn. The data showed that in the 2015 fiscal year, the Federal Government approved the sum of N557bn for capital projects, out of which N387bn was released, resulting in a funding gap of N169.6bn. From the N1.58tn budgeted for capital projects in 2016, the sum of N1.21tn were disbursed, creating a deficit of N368bn. In 2017, out of the budgeted amount of N2.17tn, only N1.56tn was disbursed for capital projects, creating a funding shortfall of N611.35bn. In 2018, the government approved N2.8tn for capital projects but released N1.8tn for implementation which caused a funding deficit of N1.01tn. Likewise, in 2019, a funding gap of N863.9bn for the execution of capital projects recorded. In 2019 annual budget, the total amount of N2.03tn allocated for capital expenditure, out of which N1.16tn was released. Analysis of the revised budget for the 2020 fiscal year showed that out of the N2.6tn meant for capital projects, only N1.94tn was remitted which led to a funding gap of N733bn. Economists told our correspondent that the annual

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revenue shortfalls could be majorly attributed to the disproportionate reliance of the Nigerian economy on crude oil [16]. Lamented revenue shortfall have affected educational system which include research programme [17], [18].

Corruption

Corruption is another barrier to effective funding of research programme in Nigeria. Corruption is a major problem facing Nigeria as a country. Corruption have found its ways into every sector of the economy including education and its sub-sector of research [19]. The little funds allocated for research administration and management are mismanaged and misappropriated by public officers in the administrative and management levels. Corruption in educational institutions have led to reduction in the volume of money budgeted for implementation of programme like carrying out research, supporting research training and facilities development [20], [21]. Daily trust 2022 reported that the Chartered Institute of Forensic and Investigative Professionals of Nigeria (CIFIPN) noted that 70 to 75 per cent of Nigeria's national budget is lost to corrupt practices at all levels of governance in the country. CIFIPN president lamented that brilliant budget ideas hardly translate to the actual implementation of the government's laudable expenditure framework. She attributed this to "wellorchestrated systemic and endemic monumental corruption of the highest proportion." Also, reported that Transparency International concluded that 66 per cent of the money Nigerian governments budgeted for education was stolen by corrupt officials [22]. The group presented the report at its sub-regional meeting in Abuja as part of the policy papers on land corruption and corruption in education systems in West Africa. According to the report, "corruption is commonplace in education systems across the Economic Community of West African States (ECOWAS). "This affects education access, quality, inclusion and learning outcomes with devastating consequences, not only for national economic growth but also for the life chances of children, their families and communities". The report highlighted Resource misallocation, corrupt procurement, exchange of sex for grades, examination malpractices, fake qualifications, teacher absenteeism, and corrupt recruitment practices as the various corruption risks and challenges facing education systems in all countries. Okebukola, noted that if we can reduce corruption and leakages in the financial system, a lot will be available to Nigerian researchers, and we would not have to depend on TETFund as the major, indeed the sole financier of research in our universities.

Insecurity Problems

The insecurity problem facing Nigeria is affecting investment in research programme in Nigeria. Asserted that despite the huge investment deficit in education and research programme, the Federal Government has continued to spend more on security and debt servicing due to the rising insecurity and debt profile of the country [23], [24]. While the Federal Government budgeted N2.98tn for defence and security and N6.31tn for debt service, only N1.24tn was budgeted for infrastructure in the 2023 approved budget. This shows that 13.4 per cent of the entire N21.83 budget is to tackle insecurity, 28.9 per cent is to service debt, and only 5.7 per cent is for infrastructure [25]. The PUNCH reported that Nigeria budgeted a total of N11.18th for security from 2015 to 2022 amid the persisting insecurity issue. Despite the high budgetary allocation, however, the country remains the second most attacked country globally by the Islamic State terrorist group. "Trillions of naira which would have been used for developmental projects are been wasted fighting insurgency and criminality. This is why both the perpetrators and their sponsors should have a rethink to release their stranglehold on our economy and advancement." A report by the African Development Bank stated that high military expenditures in Nigeria and other African countries such as Mali, Burkina Faso, Niger, Ghana, and Senegal have weakened governments' investments in critical sectors. According to the report, the Nigerian government and other African governments have a reduced capacity to invest in human capital, infrastructure, energy, and agriculture due to the high military expenditures. It read in part, "In response to heightened insecurity and violence, many African governments have increased military and security expenditures, diverting resources away from other development priorities. Military expenditure in Africa was estimated at US\$39bn in 2021, 7 per cent higher than in 2018 and 16 per cent higher than in 2011. Over the past decade, the biggest percentage increases in military expenditure occurred in the Sahel countries of Mali, Burkina Faso, and Niger. Agreed that insecurity spending in Nigeria has affected investment into other critical sectors of the economy like the health, education, infrastructure and research [26].

Poor contribution from Private Institutions

The contribution of private institutions to research funding and technical support in Nigerian tertiary institutions is poor. This submission is attested to by [27] who noted that the funds that is moving from various private institutions and international organizations into research programme in various research institutes and tertiary institutions is small compare to what is obtainable in other countries. There is poor relationship between research institutes and industries in Nigeria and tis has affected the development of the research output or outcome of various research institutes [28]. Among the issues aggravating the inadequate funding of research institutes in Nigeria is the lack of collaboration between the research institutes and the private sector/industries. About 74% of research institutes in Nigeria have no international collaborators, and 61 have no regional or national collaborators [29]. Observed that industry/business support of research in Nigerian universities is relatively non-existent, compared with the level of partnership between industry/business and universities in developed countries [30]. The oil and gas industry, however is an exception, as it provides support in the form of technical workshops, buildings, vehicles, computer hardwares and softwares to affiliated departments of Nigerian universities. But the oil industry can do better by sponsoring and facilitating intentional and strategic research funds and projects that develop local technologies.

Competition from other Sectors of the Economy

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The revenue of a country is distributed among the various sectors of the economy in order to foster national development. Education and its sub-sector like research is one of these sectors and its share of the national revenue depends on the needs of other sectors of the economy. When other sectors call for more attention of the government, the proportion of the national revenue devoted to education and its sub-sector like research may reduce. Identified competition from other sectors of the economy such agriculture development, energy development [31].

The Nature of Sources of Revenue

This determines a country's budgetary allocation to education. If a country relies on only one source of revenue, it may not be able to adequately finance education when compared with other country that diversifies her sources of revenue. For example, Nigeria's sole reliance on oil revenue could retard educational development in the country due to fluctuations in oil price in the world market, which could adversely affect government's financial commitment to the sector. If there is diversification of the nation's sources of revenue, the Federal Government would have more sources from which to derive revenue. This scenario would guarantee greater allocation to education and research programme in tertiary institutions.

High Debt Servicing

The high debt servicing of federal and state government has also affected investment in tertiary institutions research programme. The report World Bank report revealed that Nigeria used 96.3 per cent of its revenue generated in 2022 to service debt, that the constant fiscal deficit has aggravated the nation's public debt stock [32]. This was according to the Macro Poverty Outlook for Nigeria: April 2023 brief released by the World-bank. The report read indicated fiscal position deteriorated. In 2022, the cost of the petrol subsidy increased from 0.7 per cent to 2.3 per cent GDP. Low non-oil revenues and high-interest payments compounded fiscal pressures. The fiscal deficit was estimated at 5.0 per cent of GDP in 2022, breaching the stipulated limit for a federal fiscal deficit of 3 per cent. This has kept the public debt stock at over 38 per cent of GDP and pushed the debt service to revenue ratio from 83.2 per cent in 2021 to 96.3 per cent in 2022.". "Persistent structural economic issues (volatile growth, low private investment, low and inefficient public spending, due to low revenue collection, and low social development outcomes leading to low productivity) have prevented any meaningful acceleration of growth. Insecurity remains widespread, with more violent conflict events occurring across the country, adversely impacting private investment and growth [33], [34], [35] identified high debt servicing of both federal and state governments in Nigeria has one of the factors that contributed to low investment in the educational sector, especially the university system (research programme). Every year, federal and states government budgeted huge sum of money to service debt from the revenue generated. The high debt services by the federal and state government are eating deep into the government revenue and are preventing huge investments in the educational sector.

Poor Internally Generated Revenue of the Tertiary Institutions

Poor internally generated revenue of many tertiary institutions in Nigeria has limited their investment in research programme. The university system needs adequate annual financial investment to be able to realize its objectives [36]. The present structure of the public universities in Nigeria limited their financial autonomy to generate large sum of money from tuition fees. The internally generated revenue of public higher institutions in Nigeria is small and contributes a small percentage to the total funding of the various institutions in the country. The poor internally generated revenue of the universities in Nigeria is a fundamental reason for a shortage of funds in the universities across the country [37]. Majorities of public universities in Nigeria were designed and structured to depend fully on government subventions. So, universities cannot function without government funding.

CONCLUSION

Research programme is one of the cardinal programme of tertiary institutions. It is the second most ranked cardinal programme of tertiary institutions. The contributions of research programme to socio-economic and technological advancement globally cannot be underestimated. Funding is very critical to the development of research programme. The important of adequately funding of research is recognized globally and that was why there is a global funding recommendation for it to be implemented by every country. It is unfortunate that investment in research programme funding in Nigeria is poor due to many factors. This paper examined examine factors responsible for poor investment in research programme in Nigeria. The paper identified lack of political will to implement funding policy on research, fall in national revenue, corruption, insecurity problems, poor contribution from private institutions, competition from other sectors of the economy, nature of sources of revenue and high debt servicing. To address the problems of poor investment in research programme of tertiary institutions in Nigeria, the paper recommended the following: Implementation of funding policy on research funds for tertiary institutions and encouragement of more private sector participation in research funding.

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