Analysis of Unit Cost in Higher Education Sector in Nigeria

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Background

Expansion in higher education system in Nigeria has been witnessed in the last two decades and government financing has been identified as the main source of funding for the higher education institutions (HEIs). However, social demand for higher education has increased significantly over the past decade and hence, the government alone cannot bear the full cost of education, especially at the higher education level. To manage HEIs effectively, the analysis of unit costs is very important as it highlights some of the key aspects of financing e.g. the intra-institutional cost variations, inter-disciplinary cost variations, and cost structures. In line with these considerations and based on previous empirical work (for example Babalola, (1998); Chandrasiri, (2003) and Ahmed, (2015), present study makes an attempt to examine and estimate and analyze unit cost variations by type of HEIs and faculties/discipline.

Research Problem

Estimating the unit cost of university education and its determinants have been a key issue heavily debated in the literature[2]. The questions always remain, how to estimate the unit cost, how are the costs per student influence by enrolment size, teacher student ratio, non-academic students' ratio, research cost, and administrative cost? Which costs can be reduced or increased to improve quality of graduate output?

Research Methodology

In the present study, the unit cost analysis covers both direct and indirect costs. The unit cost was calculated based on a formula that total recurrent expenditure is divided by total enrolment. Both primary and secondary data collected from the National Universities Commission (NUC) and the Central Bank of Nigeria (CBN) were used. A descriptive statistics were used to summarize frequency distribution of available cross sectional data. Also a simple linear regression model was used to estimate key determinants of unit costs. The analysis is based on a survey of 30 HEIs in Nigeria representing Federal, State and Private HEIs. It also covers 76 faculties of different study programs. The analysis was carried out only for one academic year e.g. 2011/2012.

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[2] See for example the work of Dickson, 1994; Babalola, 1998; Chnadrasiri, 2003; Ali, 2012; Ahmed, 2015.

Key Findings

The unit costs based on enrolment reveals that, Private HEIs has the highest unit cost of 2,075 USD[3], followed by Federal Higher Education Institutions (1,970 USD), and State HEIs (1,369 USD). However unit cost estimates based on graduate output indicate that Federal HEIs record the highest unit cost of 10,024 USD, followed by Private HEIs (8,709 USD) and State HEIs (6,676 USD). The variation is due to high faculty members in the federal HEIs as compared to private and state HEIs. It is also due to low student enrolment in the private HEIs as compared with federal and state HEIs.

Federal HEIs are the most expensive institutions in Nigeria in terms of cost per graduate output, this may be mainly due to over staffing. The State HEIs are poorly resource and have therefore dysfunctional low unit cost. On relative terms, the unit cost of graduate output in Nigeria has been low relative to South Africa (11, 453 USD)[4], Botswana (10, 456 USD) OECD countries (11, 012 USD).

The unit cost variation by discipline indicate that Medicine as the most expensive study program with a unit cost of (21,109 USD), followed by Agriculture with a unit cost of (13,970 USD), then Pharmacy with a unit cost of (13,527 USD).

In Federal HEIs, Medicine has the highest unit cost (21,109 USD), then followed by Pharmacy (13,527 USD) then Engineering (10,340 USD) program. State HEIs shows that Agriculture has the highest unit cost (11,254 USD) followed by Medicine (10,261) and then Engineering (8,231 USD). In the Private HEIs Medicine has the highest unit cost (14,824 USD) followed by Agriculture (12,164 USD), then Engineering (9,406 USD). This pattern shows that in both public and private higher education institutions laboratory based courses are more expensive than the library based courses. The latter includes programs on Administration, Education, Law and Social Sciences recorded low unit cost across the institutions.

The key determinants of the unit cost was also analyzed using five major variables e.g. enrolment size, teacher/student ratio, academic/non-academic staff ratio, administrative cost, researcher cost and discipline specific dummy. Among them, non-academic/academic staff ration, administrative cost and research cost have a positive impact on the unit costs. Enrolment size, teacher student ratio, and discipline specific dummy variables have a negative coefficient implying that an increase in these variables would lead to corresponding decrease in the unit costs.

The results conform the theoretical argument of scale economies due to the use of indivisible factor services in higher education. It does not however, capture the quality related aspects of higher education. In fact, the quality of graduate output in Nigeria is low due to high teacher student ratio in both the public

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[3] Note that 1 USD = 165 NGN
[4] Note that 1 USD = 165 NGN

and the private HEIs. Teaching staff in Nigerian higher education institutions are grossly inadequate as most of the newly established Private, State and Federal institutions rely heavily on part time and visiting lecturers from the older institutions. They are also not well qualified and most of the institutions employ junior lecturers at low salary levels. Thus the cost of higher education tends to be low.

Conclusion

In conclusion therefore, low investment in education as recorded in the past two decade casts doubts on sustainability of the continued financing of the education and especially higher education in Nigeria. It is also worthy to note that the analysis presented in the present study to points to the need for improving quality of graduate output by providing high quality resource inputs. Considering high rate of return on higher education, the government should consider the private sector participation as a possible sources of finance to higher education in Nigeria.

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