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EDUCATIONAL COST AND RETURN TO MASTERS AND DOCTORAL PROGRAMMES IN UNIVERSITIES IN ANAMBRA STATE

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ABSTRACT

The study analysed educational cost and return to masters and doctoral programmes in universities in Anambra state, Nigeria. Three research questions guided the study while 3 hypotheses were tested at 0.05 level of significance. The population comprised 2432 respondents who are holders of Masters and Doctoral degrees, from the two universities in the state- Nnamdi Azikiwe University and Chukwuemeka Odumegwu Ojukwo University, have worked for a minimum of 4 years and resident in Anambra state. The sample of 337 respondents was drawn using Yamane's formula with a confident level 95% and an error 5%. Checklist was developed by the researcher. The checklist was use to collect data on costs. Data was analysed using mean, standard deviation, ANOVA. The finding revealed that the mean cost of Masters and Doctoral education in Nigeria universities differ significantly based on the programme of study, and the mean cost of Masters and Doctoral education in Nigeria universities differ significantly based on course of study and the returns to Masters and Doctoral education in Nigeria universities differ significantly based on the programme of study. It was recommended that the institutions of higher level should possibly review some fees charged on postgraduate education in the state to reduce cost of the programme among others.

Keywords: Educational Cost; Returns; Programmes; Universities.

Introduction

Acquiring higher degree or education is regarded as an investment in human capital. It is considered as a worthwhile investment because it increases the stock of human resources in any given society. More so, it leads to the production of educated population, and an educated population is a productive population. Generally, investment in education emphasizes how education increases the level of cognitive, productive and efficient human capability. However, this investment in education involves costs in terms of money, time, efforts and materials used up in the process of acquiring education. This is in line with Mulongo (2012), who stated that a person's education is an investment involving costs in terms of direct spending on education and the opportunity time of the student. In affirmative, Babalola (2015) asserted that decision to enrol in educational institution is an investment decision; and that investment in education, like other investments, involves costs. This implies that the decision to invest or acquire education is a worthwhile investment and attracts costs. This is supported by Tiamiyu and Raji (2019) who posited that investment in education is the cost incurred to acquire a form of training in a school system. In other

words, investing in education has inherent cost associated with it. Thus, investment in education is tantamount to cost in education.

Cost is associated with all levels of education. It is the cost incur in gaining education. Tiamiyu and Raji (2019) asserted that cost of education is the cost an individual incurs while acquiring or/and providing education. In the assertion of Babalola (2015), cost of education refers to the resources devoted to education which include direct money outlays and the indirect financial burdens (in form of opportunity costs measured as the loss of income incurred either by the individual or by the society as a result of schooling). The author argued that cost implies that all those resources used up in education constitute cost either to an individual or the society. This agrees with Akangbou cited in Tonwe (2020) that costs of education are the real resources (material, human and time) used up in the production of improved men. The author stated further that cost of education include the direct expenditures in fiscal form by individuals and society. Also, the author specified the nature of cost (direct) and in monetary form which makes it narrow due to its focus on monetary aspect only.

Contextually, cost of education is the direct monetary and indirect non-monetary expenses incurred in the process of acquiring education either by the individual or the institution/ government. Cost incurred by individual is termed private cost while the cost incurred by the institution or public is regarded as social cost. Social cost is incurred by the government while the private cost is borne by the individual, but emphasis is placed on individual; hence the private cost of education.

Private cost of education is the total cost or sum total of investment in education over a given period of time borne either by the learners or their families in both direct and indirect forms through tuition fees, living costs, books, transports, foregone earnings among others. While direct private cost of education is the cost that is directly visible and includes all money expenditure incurred on different items by the students such as tuition fees, other fees and charges, purchase of books, stationery, uniforms, hostel expenses, transport among others; indirect private cost of education (opportunity cost) are those costs which are not directly visible, (Tonwe, 2020). The author stated that direct and indirect private costs have been funded by households continuously as long as the students remain at school, college or university.

Further, Enaigbe and Olubor, (2016) outlined the component of academic costs to include examination charges, books, admission expenses, projects/ assignment cost, student handbook cost, faculty dues, stationary materials, practical materials and tools, while the non-academic or incidental costs include accommodation, transport, feeding, accommodation, transport, entertainment, foods/beverages, medical, laundry, identity card, replaced damages, club/societies among others. Tonwe (2020) posited that all the expenditures that come from students and their households directly and indirectly constitute the private cost to university education and considering the facts that individuals must fund their education that constitutes the actual cost to individual. However, these costs which are incurred either directly or indirectly vary among gender, programme of study, mode of

study and type of higher institution. This makes it imperative to examine.

Cost of education is associated to all levels of education particularly at higher education. At postgraduate level of education, programmes such as diploma, (PGD), Masters (M.Ed./MA/MSc.) and doctorate are offered at universities in Anambra state. However, the study will be limited to masters and doctorate programme. Masters' programmes are pursued after a successful completion of first degree programme and lasts for a period 18 to 24 months for full time and part time respectively. On the other hand, doctorate degree is attained or obtained after the completion of master's degree. Doctorate programme is regarded as the highest level of learning or academic attainment. This corroborates Odimegwu (2012) who regarded doctorate degree as the highest of all formal education degrees, a symbol of excellence, the zenith of learning and the pinnacle of university. The degree obtained at the completion of the programme is the highest degree. It is often assertive that postgraduate education is expensive and universities or institutions of higher learning charge tuition and other fees. Costs incur at postgraduate education vary among institutions, the course of study, mode of study and gender. This is in agreement with Jaworska (2015) who stated that disparity of costs exists also among different profiles and degree levels; that in general, educational cost of student graduating with Master's degree is, intuitively, higher than students with Bachelor's degree and lower than students graduating with PhD. The above indicated that doctorate programme is higher than masters' programme, and as such it is expected that the cost associated with these levels of education will vary.

Regardless of the high cost, investment in education yields future returns. Costs are important factors because people make decisions about investing in schooling on perceived costs and benefits (Patrinos & Psacharopoulos, 2020). Research evidence has shown a link between investment in education and returns to education (Tiamiyu & Raji, 2019). This supposes that investment in education yields returns. According to scholars, return is the reward which could be in the form of earnings and other social returns like honour, status and accommodating attitude. Their definition indicates that returns on education yields both monetary and non-monetary rewards. Further, it posited that returns on investment can be measured both in monetary and non-monetary terms. On the other hand, Psacharopoulos and Patrinos (2020) posited that return on investment in education is very similar to any other investment. It is a summary of the costs and benefits of the investment incurred at different points in time, and it is expressed in an annual (percentage) yield, like that quoted for savings accounts or government bonds. Their concept of returns on investment in education is likened to that of any other investment such as savings, bonds which is an indication of complexity. However, this assertion focused on only monetary rewards, while ignoring the non-monetary aspects of rewards to education. More so, in the findings of Tiamiyu and Raji (2019), returns to education was viewed from the context of earnings and that earnings increase as the level of education increases. This position is rather isolated and focused solely on financial gains. Umar, Mohammed and Yusuf (2015)

defined returns to education as benefits of education which accrue to the individuals and the society at large. This entails that rewards from investment in education occurs at two levels- individual (private) level and society (social), however, it failed to classify what constitute benefits to education. On a contrast, Gunderson and Oreopulous (2020) broadly classified benefits of education into two types – monetary and non-monetary; and linked it with the skills individuals received which increased their productivity as well as earnings at the workplace.

Theoretical Framework

Human Capital Theory (HCT) has been traced to the works of classical authors such as Adams Smith (1776) and extended by Alfred Marshal (1890). According to the theory, a man created at the expense of much labour and time may be compared to one of those expensive machines and the work he learns to perform should replace to him the whole expense of his education. Further, the works of Mincer (1958), Schultz (1961), and Becker (1975) gave credence to the theory when they affirmed that and that individuals, not governments are considered as the investors in education. It asserts that individuals consciously choose to invest in themselves through various activities, usually education and training; and provides a framework for analysing educational investment (Pateliene & Tamasauskiene, 2015). Relating the theory to the study, since the theory focuses on how education increases the level of productivity of workers as well as their efficiency through an increased level of cognitive skills and proficiency of the workers, it means that every individual/worker must be given opportunity to enhance his/her cognitive skills through acquisition or training as the case may be. More so, the proponents believed that if there is increased provision of schooling or education, it would greatly increase the stock of human capital in the society and consequently increases the overall national productivity and enhanced economic growth. The implication of the above is that the provision of education should be increased and accessible since education makes improved workers, impacts the society positively and accelerates economic development of any society or country.

Problem Statement

Undoubtedly, institution of higher learning tends to charge higher tuition and other fees for postgraduate programme which increase the overall costs for it. These costs are often reviewed upward periodically. With the dwindling economy coupled with inflation which has increased from 13.25% in 2020 to 21.82% in 2023 (NBS, 2023), has negatively impacted on the income of the populace. These charges (costs) which are passed down on to students and parents tend to rise far above household income and has affected the rate of enrolment in postgraduate education in both public and private universities in Anambra state. Also, it has been observed that many students who enrolled in doctorate programme tend to stay longer than the stipulated duration due to financial constraints. Even, the master's students tend to abandon their programme of study due to inability to pay accumulated school fees and charges. This situation has resulted in increased debt and decrease in enrolment in postgraduate education. High cost of postgraduate education has enormous consequences. While many students can no

longer afford to acquire postgraduate education, others have abandoned their post-graduate programmes due to inability to pay fees charged in higher institutions. Often, this situation tends to result to students staying longer than the duration or inability to successful complete the programme of study at expected time and consequently accumulate debts which may be difficult to offset timely.

Literature Review

Ilter (2022) which aimed to explore the factors that encourage teachers who currently continued with a postgraduate education with Master's program to pursue postgraduate education and barriers they faced in undertaking postgraduate education. The results shown that career development, academic autonomy, confidence in decision-making, critical thinking, and acquisition of knowledge and skills were found as factors influencing the teachers' pursuit of postgraduate education, but career development and academic autonomy were the predominant reasons for pursuing postgraduate education, there was strong agreement among the teachers that postgraduate education experiences did not increase their job satisfaction. Mamun, Rahman, Taylor, Nghiem and Khanam (2021) conducted a research on the private returns to education in rural Bangladesh. It was found that the returns to education were high at tertiary level with 12% compared to both secondary and primary with 5% each. Also, the results showed that the returns to female was more than males with 20% and 13% respectively. In agricultural sector, it was found that the returns were even higher at 26% with much smaller or statistically insignificant returns in other sectors. Adu, and Ajayi (2021) investigated the cost benefits analysis of Ph.D. education in Nigeria. The results showed that the cost of Ph.D. programme was higher compare to lower degrees, the prospect cadre for Ph.D. was high and that the financial and other benefits of Ph.D. holders were higher than other degrees. Also the higher opportunities for Ph.D. holders to reach the peak of academic cadre and other financial benefits of Ph.D. holders were far above Master degree holders which is the nearest certificate to it. Yubiliant, (2020) carried out a research on return to education and financial value of investment in higher education in Indonesia. The results indicated that the median college graduate workers earn about 60% higher salary than that of secondary school leavers. With 4 years to complete a college degree, this figure indicated that the return to higher education is implicitly around 15%, which was similar to the result of the Mincer earnings equation analysis. Pouragha, Arasteh, Zarei, Abdolahi, Sheikhbardsiri (2020) cost analysis of education for students in the school of health of Alborz University of Medical Sciences. It was found that the costs of personnel, especially paid to faculty members and the costs of capital expenditures, were the most important costs in higher education institutions. In 2020, Tonwe conducted an assessment of the indirect private unit cost of university education in the south-south geopolitical zone of Nigeria. Wu and Tang (2020) found business, science, and engineering to have the lowest educational returns, while humanities and social sciences recorded higher returns. It found out that returns to the disciplines of economics and management were at a high level in both face-to-face and distance education; returns to the disciplines

of literature, as well as education and law, were at a low level in both face-to-face and distance education. In addition, the results showed the returns to the disciplines of science and engineering were higher in face-to-face education than in distance education. Ahmed (2019) carried out an empirical analysis of investment and the determinant of unit cost in Nigerian higher education system. The results indicated a low investment to education. Also, it was found that there was existence of a funding gap in the system. Tiamiyu and Raji (2019) conducted a study on private returns to investment in university education in south-western Nigeria. It was found that the annual private costs of university education were N (345,592.56 88,211.24), while average private economic benefits (Education-Life-Earnings) was N48,278,548.20. The 2016 average bond rate and lending rate yielded N3,687,655.74 and N866,170.03 NPVs respectively. Also, the results showed that private returns to investment in university education were more viable than that of secondary education. Gobinath, Tharshan, Dheerasekara, Gunawardena, Jayakody and Lokeshwara (2019) studied the factors influencing the private cost of higher education in Sri Lanka. McRae (2019) found that business majors had the highest expected return than engineering majors which had the lowest. Fengliang, Manli and Morgan (2018) conducted a research on the rate of return to educational investment for engineers: Evidence from the private sector in China. the rate of return for engineers was significantly lower which was attributed to the declining attraction of engineering education for talented young people.

In 2014, Oyetakin and Adeosun carried a research on analysis of the heterogeneities in the unit cost of university education in Nigeria. Mertens and Röbken (2013) found that the returns to science and business disciplines were higher, while the returns to engineering at master's level were negative. Also, the scholars analysed the disciplinary differences of returns to doctoral education and found that doctorates in economics and law had the highest returns (13.76%), followed by 9.4% for social science, and 7.0% for engineering. It showed that disciplines and majors with the highest educational returns produce different results at various education levels.

Research Question

1. What are the costs of Masters and Doctoral education based on the course of study?
2. What are the rate of returns to Masters and Doctoral education based on the course of study?
3. To what extent do costs of Masters and Doctoral education relate to the rate of returns?

Hypotheses

1. There are no significant differences in the costs of Masters and Doctoral education based on the courses of the study.
2. There are no significant differences in the rate of return to Masters and Doctoral education based on the courses of the study.
3. The relationship between the cost of Masters and Doctoral education and the return in Nigeria universities is not significant.

Research Method

Research Question 1: What are the mean costs of Masters and Doctoral education based on the course of study?

Table 5: The mean costs of Masters and Doctoral education based on the course of study

Course of Study	N	Cost X
Economics	41	1,146,841.46
Education	97	855,984.54
Bus Admin	18	944,366.67
Law	48	766,562.50
Botany	8	1,910,875.00
Microbiology	18	1,451,472.22
Biochem	6	1,478,500.00
Architecture	3	730,000.00
Pharmacy	3	2,815,000.00
French	5	980.200.00
Marketing	15	1,277,800.00
Philosophy	3	1,520,000.00
Computer Science	21	620,557.14
Engineering	15	1,507,666.67
Pub. Admin	6	1,291,500.00
Anatomy	3	3,427,000.00
English	5	506,800.00
Agriculture	5	149,480.00
Mass Communication	3	1,617,500.00
Accounting	5	1,233,000.00
Pol. Science	3	1,245,000.00
Estate Management	2	1,456,000.00
Psychology	2	1,334,500.00
Sociology	2	1,696,500.00

Table 1 reveals that the mean costs of N3,427,000.00, N2,815,000.00 and N1,910,875.00, for Anatomy, Pharmacy and Botany respectively are the costliest courses for Masters and Doctoral education in Nigeria universities while Agric. Science (N149,480.00), English (N506,500.00) and Computer Science (N620,557.14) are the less costly courses for masters and doctoral education in Nigeria universities.

Null Hypothesis 1: There is no significant difference in the mean costs of Masters and Doctoral education based on the courses of the study,

Table 2: ANOVA on the mean costs of Masters and Doctoral education based on the courses of study

Source of Variation	SS	df	MS	Cal.F	P≤	Remark
Between Groups	61562960386153.390	23	2676650451571.887	9.09	0.000	S
Within Groups	92170930107689.340	313	294475815040.541			
Total	153733890493842.750	336				

In table 2, it was observed that at 23df numerator, 313df denominator and 0.05 level of significance, the calculated F9.09 with P value 0.000 which is less than 0.05, the third null hypothesis is not accepted. Therefore, the mean cost of Masters and Doctoral education in Nigeria universities differ significantly based on course of study.

The findings above revealed that the costs of masters and doctoral education differ based on course of study or discipline. This implies that some courses are costlier to undertake than others. More so, the results shown that Anatomy has the highest cost in postgraduate education, followed by Pharmacy and Botany; while the English has the lowest cost in postgraduate education. The difference could be as a result of the peculiarities or practicalities of the courses. In addition, the difference in the costs of masters and doctoral education differ significantly. This is in line with Jaworska (2015) who noted that disparity of costs exists also among different profiles and degree levels. Further, the scholar stated that in general, educational cost of student graduating with Master's degree is, intuitively, higher than students with Bachelor's degree and lower than students graduating with PhD. Further, Tiamiyu and Raji (2019) shared the same view when they stated that the average private cost of university education varies according to field of study**.**

Research Question 2: What are the mean rate of returns to Masters and Doctoral education based on the course of study?

Table 3: The mean rate of returns to Masters and Doctoral education based on the course of study

Course of Study	N	Return Rate X
Economics	41	6,964,948.45
Education	97	9,200,000.00
Bus Admin	18	8,025,000.00
Law	48	9,300,000.00
Botany	8	8,066,666.67
Microbiology	18	9,600,000.00

Biochem	6	9,600,000.00
Architecture	3	24,000,000.00
Pharmacy	3	12,497,560.98
French	5	5,760,000.00
Marketing	15	2,880,000.00
Philosophy	3	4,800,000.00
Computer Science	21	6,514,285.71
Engineering	15	12,320,000.00
Pub. Admin	6	7,800,000.00
Anatomy	3	1,800,000.00
English	5	7,440,000.00
Agriculture	5	3,360,000.00
Mass Communication	3	10,800,000.00
Accounting	5	7,440,000.00
Pol. Science	3	3,600,000.00
Estate Management	2	18,000,000.00
Psychology	2	7,200,000.00
Sociology	2	10,800,000.00

Table 3 indicates that the mean rate of returns N24,000,000.00, N18,000,000.00 and N12,497,560.98 for Architecture, Estate Management and Pharmacy respectively are the most earned courses after Masters and Doctoral education in Nigeria universities while Anatomy (N1,800,000.00), Marketing (N2,800,000.00) and Agric. Science (N3,360,000.00) are the less earned courses after masters and doctoral education in Nigeria universities.

Null Hypothesis 2: There is no significant difference in the mean rate of returns to Masters and Doctoral education based on the courses of the study,

Table 4: ANOVA on the mean rate of returns to Masters and Doctoral education based on the courses of study

Source of Variation	SS	df	MS	Cal.F	P≤	Remark
Between Groups	3041410761254279.000	23	132235250489316.480	2.252	0.001	S
Within Groups	18375882295125540.000	313	58708889121806.850			
Total	21417293056379820.000	336				

In table 4, it was observed that at 23df numerator, 313df denominator and 0.05 level of significance, the calculated F2.25 with Pvalue 0.001 which is less than 0.05, the eighth null hypothesis is not accepted. Therefore, the mean rate of returns to Masters and Doctoral education in Nigeria universities differ significantly based on course of study.

From the results, it was revealed that Architecture has the highest return followed by Estate Management and Pharmacy for masters and PhD education. Whereas Anatomy has the least return followed by Marketing and Agric. Science. This proves that business-related or marketable courses tend to yield higher returns than others. In other words, courses that have direct bearing for business are easily commercialized and tend to yield returns to the individual. This corroborates McRae (2019) who found that business majors had the highest expected return than engineering majors which had the lowest. In addition, Mertens and Röbken (2013) found that the returns to science and business disciplines were higher, while the returns to engineering at master's level were negative. Also, the scholars analyzed the disciplinary differences of returns to doctoral education and found that doctorates in economics and law had the highest returns (13.76%), followed by 9.4% for social science, and 7.0% for engineering. Further, Goldan (2020), asserted that studies have shown that earnings among university graduates differ by fields of study.

However, the result is contrary to Wu and Tang (2020) who found business, science, and engineering to have the lowest educational returns, while humanities and social sciences recorded higher returns. Sargsyan (2020) reported that vocational education has the highest internal rate of return, which was because of the smaller investment costs and the short length of the study. This depicts that courses with the highest educational returns produce differing results which are significant. These difference may be as a result of education levels, type of ownership of school and location.

Research Question 3: To what extent do costs of Masters and Doctoral education relate to the rate of returns?

Null Hypothesis 3: The relationship between the cost of Masters and Doctoral education and the rate of returns in Nigeria universities is not significant.

Table 5: Pearson r on the costs of Masters and Doctoral education and the rate of returns

N	r	df	Pvalue	P≤	Remark
337	0.468	335	0.000	0.05	S

Table 5 indicates that there is moderate relationship of 0.468 between the cost of Masters and Doctoral education and the rate of returns in Nigeria universities. Also, with calculated Pvalue of 0.000 which is less than 0.05, yje eleventh null hypothesis is not accepted. Therefore, the moderate relationship between the cost of Masters and Doctoral education and the rate of returns is significant.

The results indicated that a relationship between the costs of postgraduate education and returns to education. This is in line with

research evidence from Tiamiyu & Raji, (2019) which shown a link between investment in education and returns to education. Corroborating this, Ananya and Himanshu (2017) found that there was a positive and linear relationship between income and education. The implication of the finding is that an individual who incurs high or higher cost in postgraduate education tend to gain higher return. It implies that investment in postgraduate education plays vital role in income determination and income growth. This means that one's level of investment in education can be used to ascertain the level of income of the individual and the ability of such individual to increase his/her income base. Also, it can be deduced that a high private return constitutes a strong incentive for individuals to invest in (further) education beyond compulsory schooling.

More so, the relationship is found to be significant. In other words, there is a significant relationship between cost of postgraduate (which is investment in postgraduate education), and the benefits accruing from it after completion. In tandem, Alqattan (2013) found positive and economically significant parameters for return on education. Therefore, it can be concluded that investment in postgraduate education is a worthwhile investment and is considered profitable. This agrees with the assertion of Yassin and Derar, (2014) that an investment is considered acceptable if its IRR is greater than the cost of investment. And any investment that is considered acceptable must have its internal rate of return greater than the cost of investment. This implies that for an investment in education to be considered acceptable, the benefits of acquiring any type of education, in this case, extra education, as a matter of importance, must be greater than the cost of acquiring the education.

Conclusion

From the finding, it was concluded that the mean cost of Masters and Doctoral education in Nigeria universities differ significantly based on the programme of study, and the mean cost of Masters and Doctoral education in Nigeria universities differ significantly based on course of study and the returns to Masters and Doctoral education in Nigeria universities differ significantly based on the programme of study.

Recommendations

1. The institutions should provide some experimental materials or facilities for some courses in order to reduce the indirect private cost incurred by the individual.
2. The institution and government should avoid any rift capable of disrupting the academic activities to reduce incidences of overstay resulting from strike.
3. The institutions of higher level should possibly review some fees charged on postgraduate education in the state to reduce cost of the programme.

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