

**PRODUCTION COSTS, LEVELS OF SUBSIDIES AND PRICING IN
NIGERIAN UNIVERSITIES, 2000 TO 2006**

BY

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DEDICATION

To God be the glory for bringing this work to a successful completion.

This work is dedicated to my darling wife, Folake, Femi and all my children.

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ABSTRACT

Access to higher education, in relation to the production cost, is a key policy issue in Nigeria. To realise the high developmental impact of higher education on the country, a good understanding of how higher education price is affected by production cost and subsidy is necessary. Previous studies have analysed pricing in federal universities without considering its relationship to production cost and subsidies. This study, therefore, investigated the extent to which production cost and subsidy affect pricing in higher education in Nigeria.

The study adopted the survey research design of *ex-post facto* type. Ten federal, seven state and three private universities were purposively sampled. Out of 2000 students selected through stratified random sampling method, 1000 were from the federal universities while 700 and 300 were from state and private universities respectively. Two instruments were used for data collection - Student Questionnaire on Pricing and Subsidy ($r=0.84$) for students; and the Nigerian University Expenditure, Revenue and Student Enrolment Questionnaire ($r=0.75$) used on the 20 Bursars, 20 Registrars, 20 Directors of Academic Planning, and 20 Directors of Works of the twenty sampled universities. Supplementary information was also collected from the National Universities Commission (NUC), Abuja. Five research questions were answered and three hypotheses tested. Descriptive Statistics, t-test, Multiple Regression and Analysis of Variance were employed for data analysis.

There were significant differences in production costs among the three classified universities ($F_{(2,18)} = 29.59$, $p < 0.05$). Federal universities had an average production cost of ₦119,421 between years 2000 and 2006 while the corresponding figures for state and private universities stood at ₦45,845 and ₦248,849 respectively. Significant differences were also found in the level of subsidy in the universities ($F_{(2,18)}=8.935$, $p<0.05$). Subsidy was highest in the federal universities and was in the ratio of 57:45:10 among the federal, state and private universities respectively. The students' perceived level of subsidy was about half of what was found in these universities. Cost and subsidy had positive joint

correlation with price ($R=0.97$). Cost ($\beta=0.93$) made higher contribution to price than subsidy ($\beta=-0.30$). Price was inelastic with respect to production cost ($\epsilon=0.82$) and subsidy ($\epsilon=-0.36$). The coefficients showed that higher education prices were more responsive to changes in production cost than subsidy, suggesting that changes in production cost caused higher changes in price than changes in subsidy.

Production cost was directly related to price. Subsidy was however inversely related to price but its size was not big enough to cause a reduction in price. Increasing the quantum of subsidies employed will therefore result in price reduction and consequently increase student enrolment. Thus, government should enhance private sector participation through tax-deductible subsidies to reduce prices. NUC should also resuscitate its publications of Annual Review and Annual Report to improve access to information on universities by researchers.

Key words: Education production cost, Education subsidies, Education pricing, Higher education, Nigerian universities.

Word count: 495

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CERTIFICATION

I certify that this work was carried out by Mr. O. Osasona in the Department of Educational Management, University of Ibadan

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CHAPTER ONE INTRODUCTION

1.1 Background to the study

Access to education in relation to the cost is a key policy issue in Nigeria. A good understanding of how higher education price is affected by production cost and subsidy is necessary for Nigeria to realize the developmental impact of higher education on the country.

According to Johnstone (2004), institutions of higher education worldwide face financial problems which arise from two universal forces. The first is the high and increasing unit cost of higher education arising from a historical tertiary education production function that is both capital and labour intensive. It has also proved to be especially resistant to labour-saving technology. The second force is the pressure of increasing enrolments, particularly where high birth rates are coupled with increasing proportions of youths finishing secondary schools with aspirations for some tertiary education. The demand for higher education, both from individual students and families, has been very high in the countries of sub-Saharan Africa, most of which countries face fragile economies amid financial austerity (Johnstone, 2004).

Who pays for education has been a politically sensitive issue in Nigeria, especially at the university level. The acquisition of university education would entail cost to the recipients, and this is in terms of tuition and other levies at the institution (Owolabi, 2006). Government might decide to take care of tuition, or ask the students to pay fully or partly. Cost is however usually shared between government/proprietor and the recipients, howbeit in varying proportions. Government has made attempts to partially deregulate university education in Nigeria by involving state governments, private individuals and organisations in the establishment, funding and management of universities. Education

Tax Fund has been found also to impact positively on the financing of education in Nigeria. According to Olaniyan (2003) however, no government can single handedly solve the financial problem of the education sector. It must involve all stakeholders, which include the parents and guardians, the society in general, the private sector and non-governmental agencies.

Sources of funds for running a university could be divided into two major groups – external and internal. Internally generated revenues are derivable from tuition and sundry fees, consultancies, user charges, investments, business operations, donations, and endowments. According to Okebukola (2003), externally-derived funds constitute, on the average, about 75 percent of the total income to a federal or state university. Private universities depend on their proprietors to meet their recurrent and capital expenses but a sizable proportion of such costs is derived from internally generated revenue. Babalola (2001) noted three significant sources of revenue to the universities in Nigeria as government grant, international grant and fees in order of magnitude. A monolithic revenue base was further observed in the universities, as grants from the National Universities Commission (NUC) alone predicted 95.4 percent of the change in total income per student between 1980 and 1999.

Education occupies a central position in the policies of governments around the world and is almost always heavily subsidised. Tertiary education in the United States of America is heavily subsidised and requires large investments that are risky, lumpy and well timed (Akyol and Athreya 2004). According to McCluskey and Edwards (2009), the Department of Education of the United States of America spends \$30 billion a year on subsidies for higher education.

Spending on education is increasingly considered an investment into a collective future of societies and nations, rather than simply as individual consumption. According to UNESCO (2003), robust evidence now exists that human capital is a key determinant of

economic growth and it is also associated with a wide range of non-economic benefits such as better health and well-being. Expanding educational opportunities while maintaining their quality and ensuring their equitable distribution is linked to questions of education finance. Investment in education however competes for limited public and private resources. The university as an important element of the education system is both a social investment as well as economic investment. This is because the high level manpower to operate the nation's economy and political wheel should be well-trained. Its contribution to economic growth to raise the nation's wealth and government revenues may not be quite obvious like investment in other productive sectors such as agriculture and industry, but it is an important factor in promoting growth. A well trained human resource is needed for the whole process of developing the country, to raise the standard of living in all aspects.

Investment in education does not necessarily enhance economic growth (World Bank, 2006). The involvement of the public in the provision and bearing of university education cost is usually premised on the argument that acquisition of university education entails some level of positive externalities of the society, and as such the society is expected to bear part of the cost. According to the National Policy on Education (2004), tertiary education in Nigeria is expected to contribute to national development through high level manpower training; and the universities in particular are expected to make optimum contribution. Government is however aware of the need to fund the institutions adequately and has therefore encouraged them to explore other sources of funding such as endowments, consultancy services and commercial ventures.

Omoike and Aluede (2007) have advocated commercialization rather than deregulation and privatization of universities as an alternative to deregulation of university education; as commercialization will allow private individuals, organisations, government and students to contribute substantially to the funding of university education.

In response to demands for greater access to higher education, many private tertiary institutions were established in the 90s. The period between 1990 and 1999 witnessed a near tripling of private tertiary education institutions in Sub-Saharan Africa but a large number of the new providers are private, non-governmental institutions, and most are profit-driven and therefore, accessible only to those who can afford them (Haddad, 2003). Table 1.1 shows profiles of selected African tertiary systems as at 2007. Nine out of the selected twelve countries had more private universities than public.

Table 1.1: Differentiation profiles for selected African tertiary systems

Country	Public University	Private University	Public Polytechnic or Prof. Inst.	Private Polytechnic or Prof. Inst.	Public Technical Colleges	Private Technical Colleges
Cameroon	6	20	3	X	x	x
Ghana	7	28	10	0	n. t.	n. t.
Kenya	7	17	4	0	n. t.	n. t.
Malawi	2	2	2	1	x	x
Mozambique	3	5	8	6	n. t.	n. t.
Nigeria	50	25	51	6	46	9
Rwanda	2	6	4	4	4	4
Senegal	2	3	15	44	x	x
South Africa	22	3	0	0	100	350
Tanzania	8	13	15	x	x	x
Uganda	4	13	1	x	67	x
Zambia	2	5	0	0	3	n. t.

Source: World Bank 2009 p.95, Ng'ethe, N., Subotzky, G, and Afeti, G. 2007

Note: x = in existence, but data not available

n. t. = not included in tertiary system.

Nigerian higher education system is comprised of universities, polytechnics, and colleges offering programmes in almost all areas of learning. It has expanded rapidly in terms of the number of institutions established, new programmes, and the number of students admitted. It is the largest and most complex higher education system on the African continent. There were 117 universities in Nigeria as at July 2011. The other higher education institutions (Polytechnics, Monotechnics, and Colleges of Education) were estimated to be over 139 in number in 2008 (Obasi, 2008). According to Okebukola (2008), the Nigerian higher education system, which had 297 institutions (universities, polytechnics and colleges of education) and enrolled more than 3.5 million students in

2008, is the most expansive in Africa. Nigerian higher education institutions operate at a higher capacity than they were originally established for, yet the demand for access continues to rise. The demand for greater access to higher education continues unabated due to its social benefit, especially in a society in which social mobility depends largely on the level of education acquired. High unemployment rates of graduates, particularly in their specific fields of training, remain a problem, but have not served as a deterrent to those seeking admission into institutions of higher learning. The need for higher education is partly based on the fact that those with higher education qualifications have a better chance of securing a job in a tough market compared to those without higher education qualifications.

The early years of independence in Nigeria witnessed the creation of colleges of technology in Lagos and in the three Regions that existed at that time; Western Region (Ibadan), Eastern Region (Enugu), and Northern Region (Kaduna). As more Regions and States were created, new polytechnics owned by state governments also emerged. The Federal Government, in its effort to ensure a judicious geographical distribution of facilities for technological education, also established Federal Polytechnics in various parts of the Federation. These institutions contributed to meeting social demands for higher education up till the middle of the 1990s.

The Federal Ministry of Education has responsibility for all federal higher institutions in Nigeria. The remaining higher education institutions are primarily controlled and funded by the State Governments and private proprietors. Issues raised in this study are mainly issues affecting the university system. It is assumed that the trends observed in the universities are similar to those that are found in the other components of the higher education system. The university sub-sector in itself is diverse and complex due to its organization into institutions funded by the Federal government, State governments and private organizations and individuals.

Polytechnics were originally intended for middle and high level technical/professional education while Colleges of Education were for high-level non-graduate teacher education, but some have since become 'degree-granting institutions', with emphasis on

bachelors' degrees in Education. Monotechnics are higher institutions that offer courses in specific professional areas such as Nursing, Agriculture, and Veterinary Studies. The first institution for higher education in Nigeria was Yaba Higher College, established in 1934. This became the nucleus of the first University College, established in Ibadan in 1948. The attainment of political independence in 1960 was accompanied by expansion in the education sector in general, and in higher education in particular. There was an improved geographical spread of universities. University of Nigeria, Nsukka in the eastern part of the country was established in 1960. Ahmadu Bello University, Zaria in the northern part, University of Lagos and the University of Ife (now Obafemi Awolowo University) in the southern part of the country were established in 1962, and much later the University of Benin (1970) (National Universities Commission, 2011). These institutions are now collectively known as first generation Universities.

The year 1975 witnessed the emergence of Nigeria's second-generation universities. Most of these had begun as satellite campuses of existing universities and were located in Kano, Jos, Maiduguri, Calabar, Sokoto, Port Harcourt, and Ilorin. More universities were to follow in subsequent years, with 'boom period' in the 1980s. According to the National Universities Commission (2011), the 1990-decade witnessed the birth of private universities. This phenomenon has helped to broaden the scope of ownership of universities into Federal, State, and Private. The post-1970 institutions are now collectively called the third generation universities. One notable feature of the development of universities in Nigeria is the emergence of specialized universities. Most of these focus on Science and Technology, while there are three (Makurdi, Abeokuta, and Umudike) that focus on Agriculture.

The first Advanced Teachers' Colleges meant to produce 'highly qualified non-graduate teachers' mainly for secondary schools were established in the wake of independence in the early 1960s. They were located in Zaria (Northern Region), Owerri (Eastern Region), Ibadan (Western Region), and Abraka (Mid-West Region). The creation of more states in the Federation, and the increasing demand for teachers due to educational expansion in the country, led to the establishment of more of such institutions, now re-named Colleges

of Education, in every part of the country. Most of the institutions are either federally owned or State government-owned, but there has been a rapid increase in the number of private colleges of education in recent years. Like Polytechnics, the popularity of colleges of education is steadily waning. They are no longer anybody's first choice. For this reason the demand for university education has risen to a high level.

While striving to meet the demand for university education, there arose the need to reorganize the system in order to meet up with the contemporary challenges. Major reform initiatives such as the World Bank (Saint, *et al.*, 2003) project in the early nineties targeted the Federal universities only. The main objective of the project was to improve the effectiveness and relevance of university teaching and research and to encourage the universities to be more cost effective. The project was successful in bringing about changes in operational matters such as management efficiency and limited quality improvement but encountered difficulties in bringing about changes in areas that needed policy changes by the government, such as growth in the system and funding arrangements.

University education in Nigeria started with the establishment of University College, Ibadan in 1948 (now University of Ibadan). University education, where courses in both the sciences and humanities are offered, as well as special universities for sciences, agriculture and technology, has been a fast growing part of Nigerian education, both in number and student intake. According to the National Universities Commission (2011), the number of public universities has risen from one at independence to 72 in March 2011. University education in Nigeria is still dominated by the federal and state governments. As at July 2011, there were 117 universities in Nigeria (36 federal, 36 state, and 45 private) in addition to four inter-university centres. According to the Education Sector Analysis (ESA) (2003), the appearance of private universities threatened to throw the university system into confusion when in 1983 the Supreme Court gave legal backing to the proprietor of the Imo State Technical University; and within six months 26 private universities were established or proposed in the country. The principal motivation of many of the private universities was monetary gain (ESA, 2003). In 1984 however, the

military regime abolished all existing private universities. Starting from 1999, private universities were formally licensed to operate in the country, and this has led to the establishment of 50 private universities all over the country. The increasing emergence of private universities in Nigeria has been identified as one of the strategies to ease the financial burden of government sole ownership of universities.

With increased number of tertiary institutions and student enrolment, real financial allocation to education has been on the decline. According to Adedeji and Bamidele (2002:517), the real value of fund allocated to education has reduced considerably over the last two decades. The tuition-free policy of Government has not helped the situation in the federally owned universities.

1.2 Statement of the problem

Access to education in relation to the cost is a key policy issue in Nigeria. To understand why tuitions are increasing at institutions of higher education, policy makers need to pay attention to the relationships between and among cost, price and subsidy. Rising tuition rates could be due to either rising costs or falling subsidies or a combination of the two forces (Paulsen and Smart, 2002). Cost is what an institution spends per student; price is the proportion of costs covered by tuition; and subsidy is the difference between cost and price, or the proportion of costs paid from institutional sources such as state appropriations, gifts and endowments. If subsidies go down, either prices have to go up or educational quality has to go down.

The level of subsidy provided by government to university education has been a topical issue. The Federal Government of Nigeria heavily subsidises higher education by financing tuition-free universities for all undergraduate students attending federal universities. Admission into these federally owned universities is open to all individuals regardless of their social and economic background. In the 2006/2007 academic session, almost 59 percent of the total number of students (832,000) in all Nigerian universities were attending federal universities. Consequently, student enrolment in federal

universities has grown at an alarming rate. This has serious implications for educational quality.

In spite of the tuition-free policy of the Federal Government, however, access to university education still constitutes a major problem to a vast majority of the applicants as only about one fifth of them get admitted annually (Ojedele and Ilusanya, 2006). Moreover, the university system has lost substantial academic sessions as reactions to the problem of underfunding. There is therefore the need for appropriate costing and funding of the university education in order to achieve its objectives.

Enrolment in Nigerian universities has been increasing from year to year since 1948 and at a rate higher than what government expected. Factors influencing increases in enrolment are demographic and non-demographic. According to Adedeji *et al* (2003) some of the factors influencing enrolment growth in Nigerian universities include (1) continual increase in population or expanding school system, (2) enforcement of compulsory education, (3) differential education policies from one geographical area to the other, (4) gender distribution, (5) availability of facilities, and (6) employment prospects. On the other hand, factors that may limit growth were identified as inadequate number of trained teachers and other necessary educational resources; shortage of academic space and related facilities; and the limitation imposed by economic and financial considerations.

Over the last decade, student enrolment in the universities has been growing at an average annual rate of 3.2 percent. According to Saint, Harnet and Strassner (2003), the Nigerian university system has not had the financial resources necessary to maintain educational quality in the midst of significant enrolment explosion. Moreover, in 10 years (between 1993 and 2003), the Nigeria university system lost a total of 33 months to various strike actions in the universities as reactions to under-funding of the system (Education Sector Analysis, 2003). The Academic Staff Union of Universities has gone on national strikes for a total of 3.4 years or the equivalent of five academic sessions

between 1993 and 2009 (Bamiro and Adedeji, 2010). The need for adequate funding cannot be overemphasised as under-funding affects the quality and product of education. The above scenario presents the most obvious problem of availability of public funds for the growing student numbers, given several fiscal constraints in Nigeria. This most fundamental problem rests simply on the fact that since the price paid by a university student covers only a fraction of the cost of their education, rather than yielding additional net revenues, enrolment expansion beyond an optimum point will generate additional uncompensated costs.

In the light of the above, this study therefore investigated the extent to which production costs and the levels of subsidies affected higher education price and hence access.

1.3 Research questions

This study attempted to provide answers to the under-listed questions:

- (i) What are the levels of production cost, subsidy and price in Nigerian universities?
- (ii) What is the difference between the levels of subsidy in public and private universities in Nigeria?
- (iii) What are the student perspectives on production cost, level of subsidy and pricing in Nigerian universities?
- (iv) To what extent do production cost and subsidy determine the pricing level of university education in Nigeria?
- (v) What are the price elasticities of production cost and subsidy in Nigerian universities?

1.4 Hypotheses

The following hypotheses were formulated and tested:

- (i) There is no significant variation in the production cost of Nigerian universities.

- (ii) There is no significant difference in the level of subsidy between federal and state universities.
- (iii) There is no significant difference in the level of subsidy between public and private universities.

1.5 Justification for the study

For many decades since Nigeria became an independent country, university education was provided at little or no cost to the beneficiaries. The free university education policy was borne out of the desire to speedily develop the needed human resources in the country for the development plan chart before her. It was also meant to stimulate interest in Nigerians to make themselves available for the required training for the country. The pursuance of this goal was made easy with the oil boom of the 1970s, which constituted a veritable source of resources to achieve the set objectives. And as such, for the first two and half decades after independence, the government was able to cope favourably.

However, with the turn of events arising from the world oil market crisis of the early 1980s, it became clear that government could no longer bear the burden of university education alone. Given the Nigerian economic reality, it is obvious that tuition-free university education is not possible. In recent times, it has often been acknowledged that there is no alternative to a tuition-fee-paying university system in Nigeria, because government can hardly meet all needs. Going by the calculation of the National Universities Commission, it costs about ₦ 100,000 annually to keep an undergraduate in a university. Given a total of 566,668 actual enrolment of students in all federal and state universities, as at 2003, according to the commission, it follows immediately that about ₦ 60 billion would be required annually for the tuition-free university system.

In a bid to increase access to university education in Nigeria, the National Universities Commission has approved the establishment of 50 private universities. The processing of the approval of some more private universities has reached an advanced stage. Prior to

approval of a private university, the proprietor is expected to have made a huge capital investment in terms of acquisition of 100 hectares of land, construction of buildings, roads and other infrastructure in addition to acceptable evidence of availability of cash to sustain the university if approved. Factors such as non-availability of teaching staff, have however made the National Universities Commission to approve an initial student intake of not more than 500 for each new university. These private universities have not been able to make substantial impact at increasing access to tertiary education. According to Obasi (2008), the total enrolment in all the private universities accounted for less than 3.5 percent of the total student population in Nigerian universities as at 2007. Many of the proprietors of these universities and those owned by state governments are not fully aware of the production costs and the levels of subsidies they would have to give to all their students.

In a nut-shell, the summary of crisis in the Nigerian university in the past two decades can be attributed to issues bordering on cost: its tendency to rise, and effort to suppress such rise, as well as optimal means of sharing the cost among the sector stakeholders. Series of strikes by university staff, especially by the academic staff has been motivated by agitation for salary increase, as well as increase in funding of universities to reverse the decay feature that has characterised most of them in Nigeria. Government's attempts to meet different catalogue of requests for the running of the university translate to higher cost, and extra burden on the finances of the government. Since resources at the disposal of the government are limited, two options are open to government. One is to try to keep the cost of education down, and this has the consequence of negating the goals for which universities were established. The second is to pass part of the cost burden to other stakeholders. In this regard, the parents or the private stakeholders have to join hands with the government. Involving the parents will mean having to pay higher tuition on behalf of their wards. This has been resisted vehemently by students who would rather see university education as a right.

As a result of the foregoing, it is worthwhile investigating the production cost and level of subsidy as determinants of right pricing of university education in Nigeria. What determines the level of subsidies? What determines the production costs? What determines the level of price charged?

The findings of this study would be of practical value and interest to the following categories of people:

(i) Proprietors of institutions

The findings would enhance understanding of the levels of production costs and the levels of subsidies proprietors would need to provide in order to ensure good quality university education. For the proprietors of private universities, the findings would in addition assist in determining the appropriate fees to charge each student.

(ii) National Universities Commission

The study would assist the National Universities Commission assess the financial capabilities of proprietors to establish and run credible universities.

(iii) Policy makers

Policy makers will find the results useful in their bid to enhance access to higher education in Nigeria.

1.6 Purpose of the study

The main objective of this study was to determine the production costs, levels of subsidies and the appropriate pricing for university education in Nigeria. Specifically, the study set out to achieve the following objectives, which are to determine:

1. the relative share of funding of university education through subsidies from government and private sector in Nigeria,
2. the impact of subsidy flows on price charged in Nigerian universities, and

3. the relationship between the cost of providing university education and the price charged for the same in Nigeria.

1.7 The scope of the study

In content, the study investigated the production costs, levels of subsidies and pricing in Nigerian Universities. The study covered undergraduate and postgraduate programmes in all the 89 Nigerian Universities (federal, state and private) in existence in 2006, excluding those that had just been chartered. The purposive sampling technique was adopted to select 10 federal, seven state and three private universities. The choice of universities was made on the assumption that universities that had been established for more than four years would have adequately good history of record stability. The study covered the period between year 2000 and year 2006.

1.8 Definition of terms

The following terms which are used in this study are defined or explained to avoid misinterpretation:

(i) *Production cost*

In this study, production cost refers to the average cost and not total cost. It refers to the cost to an institution of delivering a year of university education to a student. It does not include opportunity costs. Rather, it includes amortised cost of all physical facilities (Furniture, Equipment, and Building); wage bill paid to all academic and non-academic staff; overhead costs on acquisition of relatively non-durable teaching materials, general cleaning, repairs and maintenance; vehicle running expenses; expenses on infrastructural facilities such as roads, water and electricity; expenses on research activities; library books and journals; administrative expenses; and provisions for staff retirement benefits. In determining the cost of physical facilities, furniture and equipment were amortised over a period of five years while for buildings, the period was 25 years.

(ii) Subsidy

A subsidy is an assistance paid to a business or economic sector. It is whatever is paid by a stakeholder to alleviate cost burden on another stakeholder. Most subsidies are made by the government to producers or distributed as subventions in an industry to prevent the decline of that industry or an increase in the prices of its products or simply to encourage it to hire more labour (in the case of a wage subsidy).

A subsidy generally allows a buyer to receive a good or service for less expense than would otherwise have been necessary. In this study, subsidy is the financial assistance rendered to a student in one year. It is what government/proprietor gives to alleviate cost burden. Subsidy is made up of all non-tuition sources of revenue, including state appropriations, federal grants and contracts, federal, state and private financial aid to students, endowment earnings, annual gifts, auxiliary revenues and so forth. It refers to production cost less actual money paid by a student to the university.

(iii) Price

Pricing is the mechanism for fixing the monetary value of a product or service. In this study, price is represented by the fees paid by a student in a year. The level of fees was determined by excluding amounts paid on accommodation and feeding since such amounts did not apply to all students.

(iv) Public universities

Public universities are those owned by either the Nigerian federal government or state governments.

(v) Private universities

Private universities are those owned by organisations or individuals other than those owned by the federal or state governments.

(vi) *Higher education*

Higher education relates to all forms of post secondary education. These include education in the universities, polytechnics, colleges of education, monotronics and professional schools.

(vii) *Access*

Access is making it possible for anyone who is entitled to education to receive it. It is ensuring that equitable admittance to tertiary education is based on merit, capacity, efforts and perseverance. Equity in education implies that all segments of the society get their fair share of access to whatever educational opportunities are provided. In this study, access implies opportunity for formal education while equity is fairness in admission.

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CHAPTER TWO

LITERATURE REVIEW

This chapter reviewed some of the works already done relating to this study. The review was done under the following sub-headings:

- Access to higher education
- Production cost
- Subsidies
- Prices
- Student perspectives on cost, subsidies and prices
- Appraisal of literature
- Conceptual Framework

2.1 Access to higher education

Investment in higher education has been justified on the grounds that university degrees benefit society by adding to the skills of the population, tax revenues and in general, adding to the 'public good' (Obioha, 2006). Education changes an individual from a state of ignorance to knowledge. It improves an individual's ways of thinking. Other benefits of education include development and improvement of skills as well as improvement in behaviour from tendency of raw savage to refined conduct. In general, education brings about physical, moral and above all, intellectual improvement in an individual. An educated person, who does not possess refinement of conduct or who negatively possesses all or any of the above-mentioned areas of expected improvement, cannot be properly described as educated in the real sense. An educated person therefore must be knowledgeable and possess not only the ability to read and write, but also all the qualities that education confers.

Given the positive attributes of investment in education, most countries pursue the three levels of education, namely, primary, secondary, and tertiary, so as to attain the expected level of development. But, of these educational levels, tertiary education tends to stand out as the only educational level that could transform the country from its yolk of technological backwardness to the realm of industrialized state. The importance of human capital in moving up the technological ladder cannot be over-emphasized. World Bank (2009) stressed human capital because in the context of Sub-Saharan Africa, it is the stepping stone to a viable and growth-promoting industrial system. Furthermore, human capital, if effectively harnessed, would enable African economies to increase allocative efficiency and maximise the returns from limited supplies of physical capital. Thus, given that higher education is an essential ingredient to economic advancement, countries all over the world embark on it with the aim of increasing acquisition of technical know-how of its citizenry. Despite the advantages of education, it is worrisome that many people still find it difficult to have access to education especially at the tertiary level.

Incidentally, there is a pervasive agreement in many developing countries that government should provide most of the funding for public higher education (Moussa, 1980). This is however different from what obtains in developed countries and economists have argued that the benefits from higher education accrue to individuals and were therefore of 'private good' for which individuals and families should pay accordingly. Moussa (1980) noted that an additional concomitant of the private good is the fact that grants have been changed to loans placing major burdens on many university graduates.

The ideological shift, coupled with the increasing demand pressure on public budgets, is influencing a dramatic change in the thinking about funding of public higher education in some developing countries. For example, South Africa now provides less than one-third the cost of public higher education with students paying the rest. In Western Europe, tuition remains low or in some cases entirely free as in the Scandinavian countries, hence the mad rush of Nigerian students to Sweden, Norway, Finland, or Denmark (McQueen and Wallmark, 1991). The above shows that there is still a commitment to the 'public

good theory'. The European experience supports the stance that, modern postindustrial societies can support public higher education systems and provide access to growing numbers of students. In Australia, where there has been a United State style shift to the 'private good theory', the funding system is based on concept of a tax on the earnings of university graduates, as degree holders pay back the cost of their higher education over time, based on their earnings. Thus, there is less of an immediate burden on individuals and a higher degree of equity. In Nigeria, the subscription is to the 'public good' theory, which has been questioned and looked down upon by many, because of its ineffectiveness.

Today, Nigeria is experiencing a critical manpower development problem, irrespective of the numbers of qualified candidates seeking admission into higher education, which are far greater than the numbers that can be effectively and efficiently accommodated. According to the World Bank cited by Okunola and Ikuomola, (2009), empirically, the average figure of excess demand for University education which was 42 percent in 1977 doubled itself to 84 percent by 1990 in Nigeria. In Kenya, only 21 percent of qualified secondary school graduates get university education.

Going by the 2006 population census, 45 percent or 63 million of the Nigeria's population are youths. From the standpoint of the United Nations, 28 million of this number should have access to tertiary education. But figures from the National Universities Commission, the National Board for Technical Education and the National commission for Colleges of Education, the bodies overseeing tertiary institutions in Nigeria reveal that about 1.5 million are in higher institutions. About 75 percent of this number are in the Universities. Beyond this, 83 percent of the over one million admission seekers to the nation's 83 universities (as at 2008) could not also be offered admission.

According to the statistics released by the Joint Admissions and Matriculation Board (JAMB), more than 10.5 million of the products of the nation's secondary school system could not transit into the tertiary institutions. Those who are able to secure admission are

not being given the best of education. The rot in the sector signposted by obsolete facilities, overpopulation, antiquated libraries, cultism, corruption, industrial action and examination fraud are combining to rubbish the quality of the products (Olugbile, 2008).

The statistics shown in Appendix One give the trend of access limitation in Nigeria. According to Moti (2010), the total number of applications for admission into the universities in Nigeria increased rapidly from 114,801 in 1978/79 at the inception of JAMB to 205,112 in 1981/82 academic session. This was followed by a slight drop to 191,583 in 1982/83 and increases to 201,140 and 212,114 in 1984/85 and 1985/86 respectively. The number of applications thereafter fluctuated from 193,774 in 1986/87 to 210,525 in 1987/88 and down to 190,353 in 1988/89. The figure increased steadily from 255,638 in 1989/90 to 475,923 in 1996/97 academic session. The number of applications jumped from 416,381 in 2000/01 to 749,417 in the following session, 2001/02, an increase of 55.6 percent. In 2002/03 the number of applications increased to 994,381. The year 2003/2004 witnessed the highest number of applicants (1,046,103) with only ten percent gaining admission into the universities. On the average, eighty percent of applicants could not gain admission into the universities each academic year during the period studied. Moti (2010) further observed that although the NUC recommended carrying capacity of the universities has been on the increase and total university admissions have in most years been higher than the NUC carrying capacity, these have not ameliorated the problem of access.

Government policies on Catchment Areas and Educationally Less Developed States tend to favour candidates from such states who score low marks and restrict admission opportunities for candidates with high scores who are outside the catchment and Educationally Less Developed States. JAMB (2000) established that the number of prospective students seeking admission to Nigerian tertiary institutions has been projected at about 1.2 million annually but only about 20 percent of all applicants, on the average, secure admission into such institutions.

Challenges of access to university education

According to Akpotu (2005), the major obstacles to increased access to higher education in Nigeria are not prices but the reform policies of quota system, catchment area admission policy, poor and inadequate facilities and the limited absorptive capacity of Nigerian universities. In his exploration of the challenges facing the prospective students' quest for admission into tertiary institutions in Nigeria, Moti (2010), identified five factors that have considerable influence on access to such institutions. Though, the concern of Moti (2010) was essentially on University admission process, the factors are equally applicable to other forms of tertiary education in Nigeria. These factors include quota system, carrying capacity, funding, socio-economic background of the prospective applicants and gender discrimination. An examination of these factors was seen as being essential for meaningful access to tertiary institutions in Nigeria.

Quota system:

The Federal Government of Nigeria introduced the quota system in an attempt to ensure equity in the university system but this has been grossly abused and has indeed become for many candidates, a hindrance to access to university education. The Federal Character Commission (FRN, 1996) states that the quota system involves lowering the entry qualification for states considered disadvantaged. Educationally less developed or disadvantaged areas are given 20 percent exclusive admission chances to the detriment of candidates from other states with higher scores in the matriculation examinations.

Carrying capacity:

The demand for university education is expanding coupled with the population growth in the institutions. The universities should be expanded according to the demand. Instead of the expansion to meet the demand, the National Universities Commission (NUC), the regulatory body for all Nigerian Universities, at a time came up with what is known as carrying capacity. The NUC inspected some universities and found out that many are over-populated and facilities are overstretched. The implication of the carrying capacity criterion is that students are admitted based on the resources/facilities available to the universities. These facilities include adequate lecture rooms, well stocked libraries, good

staff/student ratios, and accommodation. The policy is expected to enhance quality (Oduwaiye, 2008). However, this policy has become an impediment to access to university education as universities are careful not to exceed this capacity by high margins in order not to incur sanctions from the NUC.

Funding:

Closely connected with the issue of expansion is the demand for better funding. Expansion should be accompanied with increased funding. The budgetary allocation to education has been on the decline. In 1999, 11.12 percent of annual budget was allocated to education. This was drastically reduced to 5.9 percent in 2002 and 1.83 percent in 2003 (Akpan and Undie 2005). The minimum standard set for developing countries by UNESCO is 26 percent. Instead of moving towards this minimum standard, the experience is a decrease, thereby making expansion difficult if not impossible. Poor funding also denied many university courses from being accredited by NUC thereby reducing the access of many who could have been admitted.

The obvious is that universities in Nigeria need to be better funded. The Education Tax Fund (ETF) is a welcome development and many infrastructural developments are carried out with Education Tax Fund. Government however is yet to increase the budgetary allocation to education to meet the recommendation for developing countries. This trend of funding education in Nigeria has continued over the years. The implication is that there are not enough funds to develop infrastructure in the universities. Inadequate infrastructure necessitated the NUC admission criteria of carrying capacity of universities in order to ensure quality control. This criterion has become a restricting factor to access to university education in Nigeria.

Appendix Two shows the trend in funding the education sector covering the period between 1999 and 2008. The trend shows that education has consistently been underfunded in Nigeria. For instance in 1999, the Obasanjo administration allocated 11.2 percent or ₦ 23.047 billion of the total budget to education; 8.3 percent or ₦ 44.225 billion was granted in 2000 while it was 7.0 percent or ₦ 39.885 billion to the sector in

2001. In 2002, 5.09 percent or ₦ 100.2 billion was budgeted. In 2003, the sector enjoyed the highest allocation throughout the Obasanjo administration's eight-year term. At this period, 11.83 percent or ₦ 64.76 billion was allocated. In 2004, it was 7.8 percent or ₦ 72.22 billion. In 2005, the sector enjoyed 8.3 percent or ₦ 92.59 billion. In 2006, the sector got 8.7 percent or ₦ 166.6 billion while it was allocated 6.07 percent or ₦ 137.48 billion in 2007. The sector received the highest allocation since the current democratic dispensation in the first budget presented by late President Yar'Adua in 2008. At that time, ₦ 210 billion or 13 percent was allocated to the sector (Olugbile, 2008). On average, a total of ₦ 95.1 billion or 8.7 percent of the total budget was allocated annually between 1999 and 2008. The above data therefore point to lack of adequate commitment towards this sector and failure to realise that education is the engine that drives a nation's development.

According to Mingat, Ledoux and Rakotomalala (2008) however, the future financial challenges for most Sub-Saharan African tertiary education systems will be how to obtain more public funds, how to leverage greater funding from nonpublic sources, and how to use available funds more efficiently. This is because many African countries are approaching the limits of the share of public resources that can reasonably be expected for use in education development. These countries currently invest 4.5 percent of Gross Domestic product (GDP) in education, rising from 4.0 percent in 1988, and this is high by international standards.

Appendix Three shows public expenditure on education as percentage of GDP in 2004. UNESCO Global Education Digest (2007) expressed public expenditure on education as percentage of GDP in 2004 indicating the World average as 4.3 percent of GDP. An analysis by Region revealed that East Asia and Pacific had the least percentage, having spent only 2.8 percent of their GDP on education in 2004. South and West Asia Region was next with a percentage of 3.6. Latin America and Caribbean Region spent 4.4 percent of their GDP on education in 2004, closely followed by Sub-Saharan Africa with a percentage of 4.5 while the Middle East and North Africa had the highest percentage of 4.9. Many African countries may not therefore be expected to go much higher than the

proportion of their GDP currently allocated to education since the Region with the highest proportion (Middle East and North Africa) allocated less than 5 percent and these African countries are already spending 4.5 percent of their GDP on education.

Socio-economic background:

Poverty is a limiting factor to access to higher education in Nigeria. Ehiamentor (2005) revealed in his study that 70.2 percent of Nigerians are poor and went on to say that only 29.8 percent of families can live on one dollar (₦ 140.00) or above a day. Williams (2004) corroborated this fact that out of the population of 150 million Nigerians, about 120 million are poor. Many cannot afford to pay their children's school fees. The socio-economic hardship experienced by the parents deprives many of access to university education. The initiative of the government in granting license for the establishment of private universities is not a total solution to access as many of these poor ones cannot afford the exorbitant fees charged by these private universities. Only the children from the privileged class or high socio-economic background can afford the cost of these private universities. This means the issue of access and equity is not yet fully addressed.

Gender discrimination:

Issues relating to colour and gender discrimination have gained importance in political economy of education in the recent years. According to Babalola and Longe (2003), developing countries are paying increasing attention to the link between education of women and labour force participation. Increasing access of women to education has a ripple effect on their children. According to Emunemu and Ayeni (2003), one significant social benefit of educating women is that a mother's education improves the educational attainment of her children, particularly that of daughters. Gender discrimination is another issue that hinders access to and equity in university education in Nigeria. By tradition or religion, preference is given to education of male children over that of females. The tradition of some parts of Nigeria favours the education of male children while the religion of some also favours male children. The females are given out in early marriage. Ehiamentor (2005) reported that the number of females who took the 2004 university matriculation examination (UME) was 353,834 compared to 438,703 in 2003;

this is a drop of 19.5 percent. In each of the two years, only about 42 percent of all applicants were female. The traditional and religious beliefs affect adversely the female children's access to university education.

Government initiatives in access and equity in Nigerian universities

Government has attracted series of criticisms from stakeholders sequel to the perennial problem of access to tertiary education in Nigeria with particular reference to admission into the universities. In response, government has put some policies in place. Some of these have led to the emergence of private universities, the National Open University of Nigeria and scores of distance learning programmes for Colleges of Education and Polytechnics.

Private universities:

The legitimatization of private universities in Nigeria was the famous Supreme Court decision in favour of Basil Ukaegbu, the proprietor of the defunct Imo State Technical University in a case against the Imo State Government that had declared the institution illegal (Moti, 2010; Okwori and Okwori, 2007). This singular Supreme Court judgment threw the door open to private higher institutions in Nigeria. Within a short time four universities came up in Imo State and later Anambra and Cross River States. These established universities then were more oriented to profit than quality and so with the intervention of the military government in 1983, these 'mushroom' private universities were closed down. By the constitution of 1979, the Federal Government lost its central control over the university system and this accounted for the proliferation of state and private universities. Under the military regime of Abdulsalami Abubakar, four private universities were again opened. During the fourth civilian regime of Olusegun Obasanjo from 1999 to 2007 over thirty universities were established. Currently, there are 50 private Universities in Nigeria. The deregulation and autonomy policy allows private participation in response to the increasing demand for university education and licenses were granted to operate these universities after meeting the requirements set by NUC. To a certain extent, the establishment of these private universities would satisfy the qualified candidates who could afford the cost. The less privileged are still denied access. The

student enrollment level of the private Universities is still low and may not be an immediate solution to the problem of access (Moti, 2010). According to Obasi (2008), the total enrollment in 23 private universities in Nigeria in May 2007 was 37, 636 students representing only 3.4 percent of the total enrollment into universities. This figure was from institutions that had operated for eight years beginning from 1999 when the first three private universities were licensed. In 2009, total enrollment (41, 884) in 30 private Universities was about the same enrollment in one federal University, for example Ahmadu Bello University, Zaria had total enrollment of 39, 219 students and the University of Maiduguri had total enrollment of 38, 514 students (Obasi *et al.* 2010).

National Open University of Nigeria (NOUN):

In the past, the Federal Government shared responsibility with the states in the supply of higher education in the country. Higher education has, however, been de-regulated bringing in private ownership. Access has further been enhanced for those who need university education through the open and distance learning mode. The National Policy on Education (FRN, 2004) stated emphatically that maximum efforts would be made to enable those who can benefit from higher education to be given access through open universities or part-time programmes. Open or Distance Learning, is referred to as life-long learning, life-wide education, adult education, media-based education, self-learning (FRN, 2004). The government, still eager to enhance access to universities, approved the establishment of the National Open University of Nigeria. Open and distance learning has addressed access to university education more than private Universities. It is a good means of bridging the demand and supply gap. It also offers opportunities for those students who are unable to reside on campus. The admission policy is quite flexible and open to everyone, including the physically challenged such as the blind, deaf and dumb who desire a higher education. The student can determine the pace he can work and study centres are available in all the state capitals.

Open universities make use of Information and Communication Technology (ICT) which is globally recognized for teaching and learning. Open and distance learning education could be a right step in the right direction in addressing the issue of access to Nigerian

universities. The problem envisaged is the problem of quality of instruction and the stability of the system.

Increasing participation rates in higher education is a major global trend. According to the communiqué of the 2009 World Conference on Higher Education reported by the National Universities Commission (2009), expanding access has become a priority in the majority of Member States. Great disparities were however observed. Consequently, it was recommended that Governments and institutions should encourage women's access and participation at all levels of education and guarantee access and success.

The general literature on price response in higher education provides little direct guidance to decision-makers as the effects of price on the demand for higher education is quite complicated, difficult to evaluate and hard to apply to specific institutions (Hoenack S.A., 1977; McPherson M.S., 1978; Chisholm M. and Cohen B., 1982; and Yanikoski, 1984). According to Yanikoski and Wilson (1984), universities have long recognised the deficiencies of charging a flat rate for graduate and professional programmes. Graduate rates are higher than undergraduate rates; and students in medicine, law, business, and liberal arts pay vastly different tuition charges. Rationales used for different charges include: certain programmes simply cost more for a university to operate and a proportion of the cost should be passed on to students; future earnings of those in certain fields are sufficiently high so students can well afford to pay a higher proportion of their own educational costs; certain programmes are over-enrolled and high tuition serves as a signal of quality and selectivity (Yanikoski and Wilson, 1984).

The role of poverty in limiting access to higher education cannot be over-emphasised as some candidates cannot afford to pay the fees charged in institutions of higher learning. At an international conference on adult education and poverty reduction held in Botswana in 2004, the organizers declared that poverty is a barrier to accessing education (Gaborone-Declaration, 2004).

It is important to know which type of public financing offers the most favourable balance of costs and benefits. The choice is between funding institutions and financing students. According to Cellini (2005), taxpayer funds are most effectively spent on student financial aid in the private sector while public investments in direct provision of public education should focus on enhancing academic programmes.

Student financial aid awards have been found to improve access to higher education. According to Cellini (2005), raising student financial aid awards expands the overall pool of sub-baccalaureate students and causes proprietary schools to enter the market.

Chapman and Ryan (2001) conclude that participation in higher education has continued to increase despite the introduction of Higher Education Contribution Scheme (HECS) in Australia and that they have not resulted in a decrease in participation of students from low-income families. Blondal *et al* (2002) echo this and reach the same conclusion with regard to experience in New Zealand. Without a financial aid scheme in South Africa, the marked racial skewing of the higher education system away from non-white students would remain (Jackson, 2002). In Australia, New Zealand, United Kingdom and South Africa, there was a clear recognition that the time for “free” higher education was over. This can be traceable to an increased demand for higher education and the recognition that university education financed without direct contributions from the private beneficiaries is in essence regressive and inequitable (Greenaway and Haynes, 2004).

Financial aids will continue to have positive impact on access to higher education provided they do not result in higher production costs and subsequent increases in prices. According to Gillen (2009), financial aids are supposed to improve access and affordability in higher education but attainment figures stagnate while financial burden on students and families continues to climb year after year. Gillen (2009) identified the culprit as the universities for engaging in academic arms race, spending the additional money provided through financial aid which results in higher cost per student and generally accompanied by higher tuition with negative implications for access and affordability.

The size of an institution could affect access. According to Cohn and Cooper (2004), many institutions of higher education appear to be smaller and more specialized than what might be efficient. The study however did not recommend consolidation of institutions into larger, multi-product entities for fear that consolidation is likely to reduce access to higher education. The authors further argued that smallness might produce important benefits such as creating positive interactions between students and staff. They cautioned that a rational policy requires the balancing of costs and benefits.

The issue of access to higher education in Nigeria has a legal backing. The Nigerian Constitution (1999) stipulates that Government shall direct its policy towards ensuring that there are equal and adequate opportunities at all levels. Between 1994 and 2004, unsatisfied demand for university education was not less than 85% (Oyebade and Keshinro, 2004). According to Ojedele and Ilusanya (2006), over 80% of candidates are annually denied access to university education in Nigeria due to insufficient spaces in the universities. In a bid to increase access however, the NUC has licensed 45 private universities as at July 2011. Nigeria however experiences a systematic reduction of allocation to education (Dada, 2004). This militates against good access to university education.

2.2 Production cost

Depending on the cost behaviour, cost can be classified into six main categories (Alaluu, 1992):

1. Using the degree of averaging there are:
 - (a) Total costs; and
 - (b) Unit costs.

The total cost of producing a given quantity of output is equal to the sum of the costs of each of the inputs used in the production process. Once the total cost is determined,

the unit cost can be derived by dividing the total cost by the quantity of output produced. The total cost is more meaningful to class members when it is stated as an amount per person, that is, the unit cost.

2. Using the behaviour in relation to fluctuations in activity there are:

- (a) Variable costs
- (b) Fixed costs; and
- (c) Other costs.

Variable costs are the costs of the variable inputs to the production process (McGuigan, et al, 2002). Variable costs are uniform per unit, but their total fluctuates in direct proportion to the total of the related activity or volume. Fixed costs in contrast, are affected by long-range, management-control planning decisions and by strategic planning decisions. They are the cost of inputs to the production process that are constant over the short run. These costs will be incurred regardless of whether a small or large quantity of output is produced during the period.

3. Using the ease of traceability there are:

- (a) Direct costs/traceable costs; and
- (b) Indirect costs.

Traceable costs are costs associated with a certain product, segment or department. A direct cost is any cost that can be conveniently and economically traced to a specific cost objective (Alaluusua, 1992). An indirect cost is any cost that cannot be conveniently or economically traced and assigned to a specific cost objective. Direct or primary costs include the capital costs necessary to undertake the project, operating and maintenance costs incurred over the life of the project, and personnel expenses.

4. Using the management function there are:

(a) Manufacturing costs; and

(b) Selling costs.

Manufacturing cost is the expenditure incurred in carrying out the production processes of an organization. It includes direct costs, for example, labour, materials, and expenses, indirect costs, for example, subcontracting and overheads. Selling cost is expenditure incurred to create and stimulate demand and secure orders.

5. Using the time when computed there are:

(a) Historical costs; and

(b) Predetermined (via cost 'prediction') or budgeted costs.

Historical costs are expenditures recorded as opposed to projected or forecasted costs. Historical cost is an accounting principle requiring all financial statements items to be based on original cost. Predetermined cost is the budgeted expenditure of a regular manufacturing process against which the actual cost is measured.

6. Using the timing of charges against revenue there are:

(a) Production costs; and

(b) Period costs.

Production costs are related to manufacturing a product, for instance, material and labour costs. They are charged to inventory first and then to cost of sales when sales are made. Period costs are related to time rather than to product. Examples include advertising costs, sales commissions, and administrative salaries. They are charged against revenue in full in the year incurred.

Production cost in tertiary education as used in this study refers to the cost to an institution of delivering a year of university education to a student. It does not include

opportunity costs. Rather, it includes amortised cost of all physical facilities (Furniture, Equipment, and Building); wage bill paid to all academic and non-academic staff; overhead costs on acquisition of relatively non-durable teaching materials, general cleaning, repairs and maintenance; vehicle running expenses; expenses on infrastructural facilities such as roads, water and electricity; expenses on research activities; library books and journals; administrative expenses; and provisions for staff retirement benefits. In determining the cost of physical facilities, furniture and equipment were amortised over a period of five years while for buildings, the period was 25 years.

In some selected African countries, the production cost of tertiary education is cheapest in Togo and most expensive in Mozambique. Appendix Four shows a comparison of unit costs of secondary, technical and tertiary education in selected African countries. On average, tertiary education costs about five (4.7) times the cost of secondary education in the African countries. The table shows that tertiary education is most expensive in Ethiopia and Mozambique where it costs close to eleven (10.8 and 10.6 respectively) times as much as the cost of secondary education. In Nigeria, tertiary education costs as much as eight (7.8) times the cost of secondary education. Technical education is expensive – as much as six times as costly as general secondary education and often at par with tertiary education (World Bank, 2009).

In assessing the unit cost of university education in Nigeria, NUC (2003) listed the areas of government spending as academic cost, administrative cost, building and equipment cost. The cost of providing education generally can be categorized into fixed and variable components, as well as into explicit and implicit components. The social cost of education has been treated as a fixed material cost with no direct consideration of the opportunity cost of human capital employed by the education sector, which are unavailable for direct production. Clearly however the largest element of the production cost of university education is skilled labour making it appropriate to consider how school costs vary with the wage rates and demands for schooling that are central to this analysis. The simplest approach to defining school costs assumes that it takes both

teaching hours to educate a student and whether he or she will graduate or not. Further it is assumed that a teacher can only teach a number of students simultaneously, that is, schooling is produced by a simple fixed coefficient technology. Underlying this development is an implicit perspective that there is no choice over quality of schooling and that all educated workers are equally productive in teaching or in goods production. In equilibrium all skilled workers must receive the same utility from teaching or from goods production. Thus the teacher is only willing to work the same amount of time as any skilled worker is willing to work, while they also face the same tax rate as other educated workers.

Over the years, various estimates of unit cost of university education in Nigeria have been made. These according to Abdu (2003) include ₦ 5,000 (Cookey, 1981); ₦ 3,545 (World Bank, 1988); ₦ 7,000 (Longe, 1992); ₦ 33,000 (NUC, 1996); ₦ 100,000 (Ndayako, 1996); and ₦ 239,408 for science-based disciplines and ₦ 185,505 for arts-based disciplines (ESA/NUC, 2002). Student expenses contributed 44.8 percent of the total average unit cost while the remaining 55.2 percent stood for academic cost, administrative cost, building and equipment costs (National Universities Commission, 2002).

Findings from several studies have confirmed that investments in human capital produce high economic returns (Psacharopoulos, 1994; and Mingat and Tan, 1996). These returns have also been analysed in terms of whether they are social or private at the different levels of education. Todaro (1989:341) has shown that for many developing countries, the social costs of education are low at lower levels of education and rise rapidly at higher levels. According to the study, private costs are low at higher levels of education because of government policies of spending more at this level while private costs are high at low levels of education because of the low government subsidies.

Nwikisa (1999) compared unitary expenditures at primary and university levels of education in Zambia for the period between 1994 and 1997 and found that a university student costs on an average as much as 129 times more than a primary school student

does. The study however concluded that in spite of seemingly receiving a lot of financial resources, the universities are still under-funded. Nwikisa (1999) recommended that education should be treated like any other good or service whereby the beneficiaries should meet the cost.

Any discussion related to costs should specify carefully the particular cost concept being considered. According to Cohn and Geske (2004), economic costs are generally more inclusive than accounting costs, an important distinguishing factor being the concept of opportunity costs.

Researchers have applied cost functions to higher education. Brinkman (1990) provides a detailed survey of higher education cost functions and reviews the basic theoretical considerations related to cost functions and how basic production and cost theory from microeconomics imperfectly fits the analysis of higher education. In addition, Brinkman discussed the evolution of cost studies, beginning with Stevens and Elliot's (1925) analysis of unit costs in higher education, and reviewed more than 40 studies.

Higher education must be recognised as a "multi-product" industry that makes a lot of things beside instruction. In line with the views of Goldin and Katz (2001), universities must be considered multi-product enterprises because of the outputs they produce which typically include knowledge dissemination (teaching), knowledge creation (research), and public service. Teaching can occur at varying levels of sophistication and its output is often decomposed into undergraduate instruction and postgraduate instruction (masters and doctoral studies). Furthermore, teaching can occur within the boundaries of an increasing number of disciplines. In the case of research, it could either be applied or basic, both of which are of vital importance to societal advancement. According to McDowell (2001), 'new knowledge is the main business of the contemporary land-grant university'. Good universities must be led by research (Ward, 2002). The essence of public service is to improve the understanding of social and technical issues, so that society is more prepared to resolve the dilemma it faces.

It is useful to review the issues that relate to total collection of possible costs or spending required in the process of providing university education. The total production cost (C), that is, the institutional cost can be represented by the following equation:

$$C = R + W + V + H + M \dots \dots \dots (1)$$

where R is imputed rent for all the physical facilities on campus (Furniture, Equipment, Building); W is total wage bill paid to both academic and non-academic staff of the university; V is the overhead cost, which comprises expenses on acquisition of relatively non-durable teaching materials, general cleaning, repairs and maintenance; H represents expenses incurred on the promotion of research activities in the university, such as allowances paid to academic staff for this purpose; and M is expenses of relatively durable materials that are required for adequate learning, such as library books.

By its definition, the cost function represents a frontier relationship. Traditionally, according to Cohn and Cooper (2004), cost functions have related a single output to the minimum cost of producing the output such that

$$C(y) = f(y; p_i x_i)$$

where C(y) represents the total cost of producing y units of output; p_i represents the price of input i; x_i represents input i; and f represents the functional relationship relating costs to the level of output.

Prior to the mid-80s, most empirical research into the cost structure of higher education used rather simple methods of estimating marginal and average costs (MC and AC). The ratio MC/AC was then calculated to determine the existence of economies of scale. The best known early cost study to consider multiple outputs is Verry and Layard (1975). The study suggests that marginal costs are higher for postgraduate students than undergraduate students. Very and Layard also found that marginal costs increase progressively through the following programmes: arts, social sciences, mathematics, physical science, biological science and engineering (ranked from lowest to highest cost).

This is due to the increase in 'hardware intensity' necessary to produce instruction in these disciplines.

The first multi-product cost analysis in education was Jimenez (1986). However, Cohn *et al.* (1989) was the first study to apply a multi-product cost function to higher education using full-time graduate enrolment and the dollar value of grants for research received by an institution of higher education as measures of educational output. They found that the parameter estimates differ significantly between the public and private institutions in the United States of America for the year 1981/82, suggesting that the underlying cost structures are different between the two types of institutions. There was also evidence to suggest that research and teaching are complements in production.

Given that there has been an expansion of enrolment opportunities to a larger and more diverse student population, policy makers and administrators were concerned with the need for economies of scale. Consequently, there has developed a body of literature that examines the multi-product institutions of higher education by exploring the cost structure of universities. Inherent in their analysis is an indirect study of the production functions generating the multiple outputs produced within a university (Cohn and Cooper, 2004).

Nelson and Hevert (1992) examined the effect of class size on economies of scale. They found that economies of scale exist only when class size is allowed to increase. Koshal and Koshal with Gupta (2001) suggest that economies of scale exist for the production of both undergraduate and postgraduate teaching. Izadi *et al* (2002) however find nearly constant costs for undergraduates, very strong economies of scale for postgraduates and considerable economies of scale for research.

Babalola (2000) applied a quadratic curve estimation regression model to enrolment and unit cost data on the University of Ibadan, Nigeria for the period between 1980 and 1999. It was found that most of the faculties in the University experienced diseconomies especially in the 1990s. It was also observed that, for the period between 1994 and 1996,

recurrent cost per student doubled in a single year and tripled in two years. The cost per student which was about ₦ 3,000 in 1988, jumped to about ₦ 25,000 in 1998 representing an increase of more than 700 percent in ten years. Student enrolment on the other hand increased from about 11,000 to about 22,000 representing an increase of about 100 percent during the same period (1988-1998). The study showed that cost increased seven times more than the student enrolment within ten years in the University of Ibadan. Based on the findings of the study, it was recommended that the recurrent cost per student be controlled through cautious increases in faculty enrolments so as to fully utilise the existing resources.

Government has contributed in no small measure to the financial problems experienced by the Nigerian university system. According to Aina (2007), the priority which the Government of Nigeria accords to education is still very low. Moreover, Nigeria has adopted a slightly different kind of dual track fee policy. The federal universities have been kept tuition-free, while state and private universities have been allowed to charge fees (Ishengoma, 2002). Participants at the National Summit on Higher Education (Federal Ministry of Education, 2002) however agreed that all stakeholders be challenged to share in the cost of education by paying some fees in order to attain and sustain a reasonable level of funding of higher education in Nigeria.

In the USA however, federal funding has played a substantial role in providing students with access to higher education from the 1944 Direct Subsidies Bill to the 1965 subsidised student loans of the Higher Education Act, to the more recent tax credits and deductions of the 2001 tax Bill (Gandhi, 2008). Despite the substantial amount of federal aid, higher education in the USA remains primarily for the well-off. About 90 percent of high school graduates from families earning more than \$80,000 attend college by the time they are 24 compared to only 60 percent for the families earning less than \$33,000 (Gladieux, 2004). Kane (2004) found that gaps by family income were particularly large in four-year college entrance, with 55 percent of the highest income youth attending a four-year college at some point and only 29 percent of the lowest income youth.

According to Douglass and Keeling (2008), the ravenous need of institutions for money was originally described as “Bowen’s Rule – All universities and in particular major institutions with or seeking elite status, will use any and all funds they receive for the pursuit of perceived excellence and improvement”. Bowen’s Rule has been confirmed by others such as Charles Clotfelter, who, as Rupert Wilkinson (2005) noted, showed that universities increased their prices and general spending because they could get away with it – not to make money in itself but to buy the best of nearly everything. Ehrenberg (2002) described administrators of selected universities as cookie monsters who seek all the resources that they can get their hands on and then devour them.

According to Gary-Bobo and Trannoy (2004), it does not seem that tuition increases alone constitute a solution to the university budget problem. Concerted efforts must be made to generate additional revenue from some other sources. These sources include, but are not limited to external research grants; dividend yield/interest on bank lodgements; university space rentals; contractors’ registration fees; user charges on internet facilities; consultancy fees; hire of vehicles/properties; tender fees; income from information and communication technology (ICT); and business operations.

2.3 Subsidies

According to Barr and Johnston (2010), the microeconomic argument that higher education has social benefits (justifying taxpayer subsidy) must be considered alongside the fact that higher education also has significant private benefits justifying a contribution from the beneficiary. In making a case for private finance however, policy needs to be carefully designed to ensure that it does not harm efforts to widen access to higher education in that countries cannot afford to waste talents (Barr and Johnston, 2010). Increased access to university education cannot be achieved by raising private cost from its original level, because some courses that are crucial to national development may be rationalised if market forces are used to determine the number of programmes a university will run. However, it has been acknowledged that University education in Africa and Nigeria in particular is heavily subsidized, simply by being sold at a price that does not cover its costs of production. Thus, the distribution of those subsidies had been

studied as an important dimension of public policy – of equity and educational access. And by tradition, higher education in Nigeria is supplied by institutions with a non-profit mandate. These institutions differ noticeably from private suppliers of other consumable services, to whom economic theory typically ascribes profit maximising motives, by behaving as “Prestige Maximizers” (Bowen, 1981). Also, as noted by Winston (2000), the competitive process in higher education is analogous to an arms race in which institutions are fighting for rank within the set of all universities and institutions.

Winston (1997) observes that it is a fundamental anomaly in economics of higher education that most universities sell their primary product - education – at a price that is far less than the average cost of its production. He notes that, in the United States of America, student subsidies represent a large part of total costs, and they are only slightly smaller in private than in public institutions.

Three main objectives of financial aid are: to increase access, to increase affordability and make higher education cheaper for students, and to promote equality of opportunity and make sure disadvantaged students can go to school. For these objectives to be achieved, a clear understanding of the operations of higher education institutions is important.

Nonprofit firms are allowed to make profits, and usually do; the term “nonprofit” does not mean that revenues never exceed expenditures. Instead, it means that there is no outsider to whom the enterprise can legally distribute those profits as the normal firm distributes profits to its owners (Winston, 1999). Hansmann (1981) has identified both legal and economic rationale for the nonprofit firm as a situation in which, due to asymmetries of information, the buyer is highly vulnerable to sellers’ opportunism. He further maintained that the key legal and economic characteristic of nonprofit enterprises is a “non-distribution constraint”. It is easy to take advantage of customers in situation where little information exists, as to what they (the customers) are buying. On one extreme, consumers may not be informed about whether they have bought anything at all. More often, on the other extreme, consumers know that they have bought something, but they also know that they are vulnerable to receiving a service of lower cost or quality

than they expected and paid for. People investing in human capital through a purchase of higher education do not know what they are buying—and will not and cannot know what they have bought until it is far too late to do anything about it. It may be impossible to draw up a contract that guarantees that the expected quality in all its dimensions will be provided. By reducing incentives for the opportunistic behavior, nonprofits become the preferred suppliers in certain settings. They increase the probability—and the confidence of donors or buyers—that they are getting what they are paying for, tending to offset the contract failure inherent in such asymmetric markets (Winston, 1999).

Possibly one can say that investments in human capital proceeds in the face of a significant degree of ignorance of how it will turn out and whether the hoped-for future benefits will certainly come into fruition. Education is typically one-shot investment expenditure, unique rather than repetitive purchase, more like buying a cancer cure than groceries (Litten, 1980; Winston, 1988). Indeed, it is an uncertain investment often made in large part by a parent on behalf of a child, adding yet another layer of murkiness as to how well a rational choice model applies in this context (Winston, 1999).

While nonprofit firms are owned by nobody but by themselves, their behaviour must however respect the fact that total costs cannot continually exceed total revenues. A nonprofit firm may appear to be profit-motivated in its attempts to raise revenue, when in fact it is only recognizing the reality that it is budget-constrained.

Moreover, managers can and do shift profits around within a multi-product non-profit firm, using those from activities they do not much like to cross-subsidize those they do (James, 1978; Weisbrod, 1988). Profits made from external degree education programmes, for instance, might be used to support activities on the full time regular programme of the university. In higher education, administrators appear motivated by what Clotfelter (1996) calls “the pursuit of excellence,” a general goal which in practice means maintaining or improving the quality of the educational services they supply and

the equity with which they are provided (Bowen and Breneman, 1993). Striving for academic excellence is often defined relative to other institutions. In the context of universities with single-valued objective function, it is something like “prestige maximization” (James, 1990).

Distinctions between ‘donative nonprofits’ and ‘commercial nonprofits’ as sources of revenue for nonprofit firms, have been made. According to Hansmann (1981), examples of ‘donative nonprofits include churches, supported by charitable donations from people who endorse the firm’s ideological purposes. For the ‘commercial nonprofits, examples include day-care centers, supported more conventionally by the sale of goods or services. Both sources of revenue are open to universities. They are supported by both charitable contributions and by sales revenues, and are as such ‘donative-commercial nonprofits’.

According to Winston (1999), donative revenues result from the various charitable motives of their donors; in the case of education, such motives include a dedication to equal opportunity under the belief that education is a human capital investment, an appreciation of the externalities of an educated citizenry, an alumnus’s sense of obligation to repay past subsidies, a desire to bathe in the reflected glory of an improving alma mater, and so on. Commercial revenues are supported by more conventional personal consumption and investment incentives.

In university education, sales proceeds in the form of net tuition receipts are the commercial revenues that combine with charitable donations, broadly defined as legislative appropriations, current gifts, and asset earnings from the accumulated past donations embedded in endowment and physical plant (Winston, 1999). Possibility of addition to asset accumulation depends on prudent management of current operations. As obtains for business firm, that total costs do not continually exceed total revenues is crucial to the long-run survival for the university. Unlike business firm, donative-commercial nonprofits can and do subsidize their customers, selling them a product at a price that is below the costs of its production (Winston, 1999). This continuous

sustainable shortfall of price relative to production cost is a defining economic characteristic of higher education, both public and private.

Winston (2000) has argued that our approach to the issue of subsidy is influenced wrongly by an analogy to the profit-making firm, where price exceeds cost by an amount that equals profit. But, in the non-profit sector, and particularly in higher education, cost exceeds price by an amount equal to subsidy. However, this subsidy is made up of all non-tuition sources of revenue, including state appropriations, federal grants and contracts, federal, state and private financial aid to students, endowment earnings, annual gifts, auxiliary revenues and so forth. Therefore, when the public rails against increases in university costs, what they are doing is that they are railing against increase in University prices.

By pointing to the high economic returns to additional education many people readily accept a significant governmental role in the production and financing of education. As a general rule, an active role for government is justified by some market imperfection, which is tangential to the motive of simple maximization of aggregate output.

The need for free and universal elementary and secondary education has been premised on the issue of externalities such as improving the functioning of democratic government or reducing crime. However, in the case of governmental investments in higher education, these arguments are less convincing. In the opinion of Becker (1993), and Garratt and Marshall (1994), reliance on externality arguments for providing subsidies on higher education especially through free or reduced tuition programs at public universities is more often defended based on either distributional grounds or capital market imperfections and the inability to borrow against human capital. Since human capital investments have productive value, education may then be seen as having unique features.

Looked at from a different perspective, a considerable portion of the discussion of higher education finance has focused on intergenerational equity and access. For broad evaluation of higher education finance, McPherson and Schapiro (1997) focus on how public tuition subsidies interact with parental incomes. Here, the question of the redistributive effects of education subsidies relative to no governmental intervention or to alternative redistribution programmes is addressed.

According to Akyol and Athreya (2004), tertiary education in both the United States of America and the rest of Organisation for Economic Co-operation and Development (OECD) is heavily subsidised, typically in the range of 30 to 100 percent. The effects of subsidies appear to extend beyond the lifetime of an individual, influencing long run income and wealth inequality. There is strong evidence that university-educated parents produce or raise children who are substantially better prepared for university education. For instance, Ishitani and DesJardins (2002); Warburton *et al.* (2001); Chen (2004); and Horn and Nunez (2000) all document the presence of 'first generation' (students whose parents did not complete university) effects, even after controlling for family income.

Subsidies make university investment more attractive, especially to low wealth households, by reducing both the direct cost of university and the cost of making a risky investment in human capital. According to Akyol and Athreya (2004), subsidies decrease the private cost of education investment. Therefore, households do not have to save large amounts against the possibility of having to send an academically able child to university. Subsidies however have the potential to introduce large types of costs. First, subsidies may generate non-trivial adverse selection by encouraging progressively more poorly prepared students to attend universities. Second, subsidies must be financed via taxation and when markets are incomplete, even lump-sum taxes are distortionary (Akyol and Athreya, 2004).

Furthermore, another study by Winston and Yen (1995) has attempted to shift focus from subsidies to the students to subsidies to the universities and colleges based on certain characteristics. They argue that subsidies are unavoidable part of the cost, price, quality and aid strategies of colleges and universities.

Of recent, there has been a debate on whether or not subsidy should be provided for all students. In their submission to the United Kingdom Independent Review on Higher Education Funding and Student Finance, Barr and Johnston (2010) observed that the British system of student loans has a zero real rate of interest, less than it costs the Government to borrow the money. The authors concluded that the blanket subsidy is profoundly mistaken, being costly both in fiscal and policy terms.

2.4 Prices

Right pricing is the art of choosing the best price for products of an industry. A good starting point for a manager is to determine a price based on the cost of producing a product or service. If price is too high potential sales will be lost, if too low pure profit is not appropriated by the industry. In the opinion of Alaluusua (1992), “if the prices do not cover costs, the company would fall in the long run (if not subsidized by someone)”.

An industry may have various objectives for pricing their products. According to Alaluusua (1992), possible pricing objectives in an industry include:

- (a) Maintaining and gaining market share
- (b) Selling at socially responsible prices
- (c) Maintaining stated rate of return on investment
- (d) Realizing Profits

Universities may be viewed as a multiproduct enterprise. Hence, pricing decision in a university is similar to marketing products. In pricing a product, Monroe (2003) identified four important factors that must be taken into consideration. The first is that the cost of production must be known. Unfortunately, a truly sophisticated and robust

financial model of the higher education institutions is not really available (Palfreyman, 2004). The second factor is the need to know the demand for the product. There is a high demand for university education in Nigeria (Moti, 2010). The third factor is that the competition and market must also be known. The fourth factor is the objectives of the institution. The academic objectives of universities in Nigeria are well known as incorporated in their Academic Briefs and the Laws establishing them.

The Center for Business Planning (2011) categorized factors affecting price decisions may be into two, namely, internal and external factors. Internal factors result from company decisions and actions and they include marketing objectives; marketing mix strategy; costs; and organizational considerations. External factors on the other hand are not controlled by the company but will impact pricing decisions. They include nature of the market and demand; competition; and other environmental factors (economy, resellers, and government). According to Abeysinghe (2009), the economic theory of pricing suggests that the volume of demand for a good in the market as a whole is influenced by variables such as the following: the price of a good; the price of other goods; the size and distribution of household income; expectations; obsolescence; the perceived quality of the product; tastes and fashion. According to Palfreyman (2004), certain factors influence a university in deciding the level of fee to charge and whether to charge differentially across its range of degree courses (say, law, management and medicine, compared with philosophy and nursing). These factors primarily include: the economic theory of pricing and deciding what-the-market-will-really-bear (value-based pricing rather than cost-oriented pricing), presumably risking bankruptcy if a university prices itself out of the market or a local crisis if it over-prices its law or physics degree. The level of price of an institution also depends on its reputation/brand image; it may also link to what other similar higher education institutions charge, that is, competitor-oriented pricing (Palfreyman, 2004).

Gibbs (2002) however argues for trust to be part of a marketing relationship between student and higher education institution, rather than the simplistic application of the principles of for-profit marketing reducing higher education to a consumption good,

bringing about the commodification and consumerisation of higher education learning. Gibbs called for a reconceptualised marketing mix where the four Ps (product, price, place, promotion) are replaced in a higher education context by the four Cs (concept, cost, channel, communication) in the learner relationship model of marketing.

Establishing prices or tuition rates at institutions of higher learning is always of fundamental strategic importance to university administrators and policy makers who are suffering adverse financial effects from reduced allocations from external sources and increased educational and facility costs (Chressanthis, 1986). Universities have responded by becoming more sophisticated in their use of tuition pricing as a positioning device (Bryan and Whipple, 1995). They have considered the effects of students' ability to pay, institutional student aid, and expenditure plans on enrolment rates (St. John, 1992). Only little work had been done however to evaluate demand at various tuition rates (Smith, 1984) and only very few studies have investigated the demand for education at particular institutions (Funk, 1972; Hyde, 1978) and even fewer have dealt with the retention effect of various tuition increases on current students (Bryan and Whipple, 1995).

In the United States of America, only few doubt that published tuition rates (sticker price) have been increasing at alarming rates. It is often argued however that "net tuition" or the out of pocket expenses, for students is much lower because of financial aid (Gillen, *et al.*, 2008). It was found by Gillen *et al.* that with a few exceptions, financial aid has not increased sufficiently to offset increases in published tuition. In other words, the net tuition paid by students is higher than what it was five years earlier.

The National Centre for Education Statistics (NCES) in the United States of America carried out a study on the relationship between increases in prices and costs in public 4-year institutions, public 2-year institutions, and private not-for-profit 4-year institutions. NCES (2003) found no close relationship between increases in prices and costs during the 1990s for the groups studied. It was found that tuition increased faster than most expenditure categories, including instructions, which is the largest expenditure category

at post-secondary institutions. While price was largely associated with factors external to the institution, cost was driven by internal instructional programmes and priorities. In the public sector, tuition charges are politically determined prices that often bear little, if any, direct relationship to economic costs. It is only in the most tuition dependent institutions that prices and costs behaviours are closely linked (NCES, 2003).

Bryan and Whipple (1995) investigated a tuition elasticity model to provide adequate information to decision makers at Mount Vernon Nazarene College (MVNC), a small private liberal-arts college located in Ohio, United States of America. The primary research question was “What is the tuition elasticity of demand for a college education at MVNC among current students, and what are the implications for the school?” The study evaluated the tuition elasticity of current students of a particular institution, projected potential enrolments and operational net earnings, and suggested an optimal tuition price level for the institution. The results of the study showed that MVNC was not pricing at a point that maximised its operational earnings. There were marginal returns to be gained by raising tuition. With a 16 percent increase in tuition, MVNC could expect a reduction from current enrolment of 14 percent, a situation of high retention and a major tuition revenue increase. The study further showed that the tuition elasticity coefficient of demand for education at MVNC ranged from -0.12 to -0.30. As tuition increased relative to the current rate, the elasticity coefficient also increased. Beyond \$7000 however, net earnings decreased and then turned negative. Except for institutions with very high or very low images, relative tuition increases typically reduce university enrolments (Remus, 1983; Weiler, 1984).

According to Palfreyman (2004), the major factor in keeping UK higher education cheap was massified in academic salaries being held at low levels. This has recruitment and retention problems. Most States in the US have questioned the efficiency and value of a low-tuition policy and have moved to a high-tuition/high-aid model (Palfreyman, 2004). They are prepared to spend more annually per student, whether by way of direct taxpayer funding or by allowing their public universities to charge realistic tuition fees.

Optimal tuition and fees can be smaller than marginal cost, even if higher education does not generate global positive externalities. Gary-Bobo and Trannoy (2004) showed that optimal tuition can entail an element of direct subsidy, a rebate, which is an increasing function of the precision of the information a university has about student's abilities. This means that a social optimum will often be characterised by the need for outside resources in the form of public money or donations, which are thus fully justified, to balance the university budget.

Higher tuition has negative implications for access and affordability. Increases in tuition tend to discourage prospective students from matriculating in a university. This is particularly so for students from low income households whose major consideration in making a decision to matriculate is money. Some students from poor background simply cannot afford to pay high tuition and therefore would not matriculate.

2.5 Student perspectives on cost, subsidies and prices

On pricing educational programmes, Kotler (1995) placed emphasis on understanding how the student perceives price as the consumer, his/her personal cost-benefit analysis to determine the expected/hoped-for value of attending one university rather than the other. Consumers seem wary of universities that charge significantly less than comparable universities; but also for every university the existence of a psychological price barrier must be noted (Kotler, 1995).

In the United States of America, the bulk of the legal literature for higher education focuses on the monetary inadequacy of the subsidies to students in tertiary institutions. Such studies include Zubrow (1991); Albus (1998); Dynarski (2002a); Sharkey (2005); Coy, Li and Carroll (2006); and Heller (2006). Dodge (1993) and Gazur (2004) focused on the distributional inequalities of the funding mechanisms. Other scholars focused on complexity issues, arguing that consolidating different aid packages would decrease rule complexity and increase take-up. These include Cronin (1997); Weinstein (2003); Kalafat (2005, 1985); and Dynarski and Scott-Clayton (2006). However, no study has considered

how the behavioural responses to timing of financial aid affect a student's decision to enroll in a university (Cronin, 1997).

Gandhi (2008) applied insights from behavioural economics to show that up-front delivery of subsidies for higher education increases the effectiveness of subsidy as an incentive. For financially strapped students close to entering university, whether delivery of aid occurs up-front as costs incur, or after completion of university, can make or break the decision to matriculate. According to Gandhi (2008), while other factors may influence a student's decision to attend university, to the extent that his or her decision rests on financial concerns, shifting when subsidies are delivered may more effectively alleviate monetary pressures. Gandhi estimates that an accelerated subsidy would effect a 16.7 percent change in higher education enrolment among low-income students.

Behavioral economic theories of loss aversion and myopia suggest that the size of the subsidy is actually secondary to when such subsidies are delivered. The concepts of myopia and loss aversion stem from Kahneman and Tversky's Prospect Theory. In prospect theory, utility maximizing outcomes are not calculated by simply multiplying the value of an outcome with its probability (Tversky and Kahneman, 1986). Rather, the value of an outcome is defined in terms of gains and losses according to deviations from a reference point. Losses loom larger than gains, meaning that responses to loss are more extreme than responses to gains. Because gains and losses are measured relative to a reference point, how one frames the reference point affects the perception of a gain or loss. In this sense, subjective perception significantly affects outcomes (Kahneman, 2003; and Thaler and Benartzi, 1997). According to Gandhi (2008), the policy implication for student aid is significant; the government should front-load savings in order to maximize students' behavioural response because any given subsidy amount will generate a larger behavioural response in student enrolment simply by virtue of its earlier delivery.

Indeed, empirical studies also suggest that university enrolment is more sensitive to grant aid than loan aid (Linsenmeier, Rosen and Rouse, 2002; Dynarski, 2003; and Maag and Fitzpatrick, 2004). Linsenmeier, Rosen and Rouse (2002) examined the financial aid package at Northeastern University. When Northeastern replaced the loan portion of its aid packages with grants, matriculation by low-income and low-income minority students increased. By changing the composition rather than the amount of the aid, the programme increased the likelihood of enrolment for low-income minority students by about three percentage points, with an effect on low-income minority students at approximately eight to ten percentage points. In a more targeted study, Dynarski (2003) focused on identifying the impact of loan subsidies on matriculation. She found that enrolment did not increase at a significant level when students were provided with subsidized loans, a type of loan that bears close resemblance to a price subsidy because the government pays interest while the student is in school. Despite the substantial subsidy, students did not internalize the benefit because they failed to recognize the funding as a tuition subsidy. She however found that \$1,000 grant aid increased university enrolment by 3.6 percent.

According to Heller (1997), the empirical studies all strongly suggest that while financial aid in the form of a loan or a grant both create discounts to the posted tuition price, students react differently to various forms of financial aid and tuition charges based upon delivery, even if the economic value of each is the same. Dynarski (2002b) concluded that, because students perceive grant aid as price subsidies, the substitution of grant aid with loan aid deters students on the financial margin of entering university.

Access to university education is more sensitive to grant aid than loans. When a decision to enroll in a university rests on financial considerations, candidates are more inclined to appreciate the effectiveness of early delivery of financial aid in form of grants than loans. Hence, both behavioural economics and empirical evidence present a compelling case for concentrating subsidies to education up-front at the time a student incurs costs.

In Nigeria, student reactions to increases in price often manifest in demonstrations and student unrest, and which consequently often lead to closure of institutions of higher education. According to Adebayo (2002), the April 1978 “Ali-Must-Go” crisis was caused by the arbitrary increase in feeding and boarding fee by the Federal Military Government. Feeding fee was tripled from ₦ 0.50 to ₦ 1.50 while that of boarding increased from ₦ 150.00 to ₦ 400.00, representing about 2.7 times what it used to be. This was done at a time when the university students were expecting free education at all levels in Nigeria. Inadequate funding of the university system has also been identified as a cause of student unrest. Akinboye (1980) highlighted deplorable conditions of infrastructural facilities as a result of inadequate funding for maintenance and provision of new ones, as one of the causes of student unrest.

Many Nigerian tertiary institutions were closed down for months in 1984 as a result of students’ unrest caused by a proposed introduction of tuition fees and the scrapping of catering services. Aluede, Jimoh, Agwinede and Omoregie (2005) identified certain welfare problems that are currently causing student unrest in Nigerian universities. These factors include, lack of financial aid; inadequate hostel accommodation; unsatisfactory supply of food and catering services; overcrowded lecture halls and hostels; and poor sanitary conditions. According to Altbach and Cohen (1990); Novak (1977); and Ojo (1995), absence of welfare amenities, such as, residential facilities for a sizeable number of students; government policies and actions; government engagement in war and peace keeping missions; social unrest; and academic stress have constantly been issues that have largely dominated student protest actions in higher educational institutions.

Alimba (2008) also discovered that: increase in tuition fees; inadequate facilities for teaching and learning; communication break down between school authorities and students’ representatives; poor leadership style of school authorities; rustication and expulsion of union leaders; accommodation problem and security problem on campus are very serious factors causing student’s unrest in tertiary institutions. In a study conducted by Adebayo (2009), 78.6 percent of the respondents agreed that student-authority conflict occurs in Nigerian universities when the school fees are too high.

According to Aluede *et al.* (2005), funding of education in Nigeria is an issue that is likely to generate student unrest in the near future. Aluede *et al.* (2005) argued that given the poor funding situation, universities may have no option other than to charge students exorbitant fees to keep the universities alive; and coming from poor backgrounds, many of the students would certainly not be able to meet the new fees requirement and may be forced to withdraw, while others are likely to vehemently oppose the new policy. In conclusion, Aluede *et al.* (2005) opined that students believe that the underfunding of universities in Nigeria is only a deliberate attempt to under-educate them. Judging by government's generosity to other developing nations in the provision of technical support, the students are likely to believe that the government is rich enough to be able to provide all that the universities would require for effective learning and administration.

2.6 Appraisal of literature

Justification has been found for investment in higher education on the grounds that the society derives benefits from university degrees (Obioha, 2006). According to World Bank (2009), human capital could serve as a spring board for promoting growth in Sub-Saharan Africa; hence most countries pursue education so as to attain the expected level of development.

In Nigeria, the issue of access to education has a legal backing. The excess demand for university education in Nigeria however doubled in the period between 1977 and 1990. On average, 80 percent of applicants could not gain admission into universities during the period between 1978/79 and 2007/08 sessions. The major obstacles to increased access have been identified as government reform policies of quota system; catchment area admission policy; inadequate funding of institutions; poverty; gender discrimination; poor and inadequate facilities; and limited absorptive capacity of the Nigerian universities. Government efforts at improving access include the establishment of the

National Open University of Nigeria and other open and distance learning programmes; and the approval of private universities.

Student financial aid awards have been found to improve access to higher education provided they do not result in higher production costs and subsequent increases in prices. Preference must however be given to prospective students who are both poor and academically able to benefit from university education. Subsidies to education should be concentrated up-front when a student incurs costs rather than in the form of a loan which would have to be paid back on graduation.

While a lot of study has been carried out on the cost of university education, a lengthy economics literature talked about voluntary and charitable giving by individual households both theoretically and empirically as one in a vector of goods over which households must choose their level of consumption, given price and income constraints (Lewis and Winston, 1997). These studies (See Taussig (1967), Feldstein 1975a, 1975b), Clotfelter (1985), Lackford and Wyckoff (1991), and Weisbrod (1988) for some examples) generally find positive and significant elasticity of giving with respect to tax deductibility and income elasticity of giving that is positive, statistically significant, and less than one.

Breneman (2000) postulated that there is no objective standard regarding how much higher education should cost. In 2003 however, the National Universities Commission carried out a study on unit costs of university education in Nigeria during 2001 and 2002. The average student unit cost in all Nigeria universities irrespective of discipline for 2002 was found to be ₦ 224,380. The corresponding figure for 2001 was found to be higher because of low funding of capital projects in 2002. There were variations among disciplines, with arts-based disciplines recording the least unit costs, while medical disciplines recorded the highest (NUC, 2003). Variations were also observed among universities. Conventional universities were found to be more cost efficient than specialized universities. In 2001, government and authorities of the universities were

found to contribute about 55 percent of the unit costs as subsidy. According to the study, increase in student enrolment in the two years was not met with a commensurate increase in funding. The study was however limited to nine selected federal universities for lack of sufficient funding information on state and private universities. It was also limited to undergraduate students.

On average, tertiary education costs about five times the cost of secondary education in selected African countries, including Nigeria. In Nigeria, tertiary education costs about eight times the cost of secondary education. The cost per student in the University of Ibadan, Nigeria increased more than 700 percent in ten years between 1988 and 1998 (Babalola, 2000). Cost in the University was also found to increase seven times more than student enrolment within the ten years.

A small body of research focusing specifically upon charitable giving to institutions of higher education has empirically examined the determinants of donative revenue flows. Olaniyi (2001) believes that the finance of University education should be sourced domestically. He concluded that, given the fact that the function of universities and all tertiary institutions in the development of domestic resources for the realization of the nation's aspirations cannot be overemphasized, then government can afford to finance the education sector wholly/directly through domestic savings.

However, it has been observed that University education is usually subsidised, that is, its prices never cover cost of production. Winston (1997), having carried out a research on changing subsidies and the economy of US higher education, agreed that university students had been greatly subsidised and concluded that higher education should be privatised not by a shift of enrolment to the private sector, but by a shift of the cost burden from government to the student in the public institutions. In paragraph 40 (b) of the National Policy on Education, it is stated that financial consideration alone will not be the conclusive bar to access to higher education for anyone who can benefit from it (Federal Government of Nigeria, 2004). Furthermore, the Policy emphasised that

university education will continue to be free and that a combination of scholarships and loans will continue to be used to assist indigent but bright students to gain access to higher education.

Subsidies make investment in university education more attractive, especially to low wealth households, as subsidies decrease the private cost of education investment. In the United States of America, tuition rates have been increasing at alarming rates. With a few exceptions, financial aid has not increased sufficiently to offset increases in published tuition (Gillen *et al.*, 2008).

Available literature on the perceptions of students on cost, subsidies and price of university education in Nigeria is scanty and mostly non-empirical. A former Students' Union President has however expressed the view that government ought to continue to provide subsidies since benefits derivable from subsidy removal are nothing compared to costs of closure of universities in terms of lost productivity of university workers, and the deferred productivity of the students whose graduations are postponed. According to Fabiyi (2005), university administrators should device innovative ways of generating funds to ensure that if government were to abdicate its financial duties, students would not suffer unduly.

Gandhi (2008) applied insights from behavioural economics to show that up-front delivery of subsidies for higher education increases the effectiveness of subsidy as an incentive. Behavioural economic theories of loss aversion and myopia suggest that the size of the subsidy is actually secondary to when subsidies are delivered. Hence subsidies in form of grant aid are more effective than loan aid in improving access to higher education. Empirical studies also strongly suggest that while financial aid in the form of a loan or a grant both create discounts to the posted tuition price, students react differently to various forms of financial aid and tuition charges based upon delivery (Heller, 1997). Hence both behavioural economics and empirical evidence support concentrating subsidies up-front at the time costs are incurred by the student. In Nigeria, students often

react in demonstrations and unrests to increases in prices. It is believed that the Government of Nigeria has adequate resources to embark on free education at all levels.

According to McPherson and Schapiro (1997), the attention on subsidies brings into focus the relationships between subsidies, cost, tuitions and aid in a useful way. It provides better information about the economic structure of a university as distinct from the structure of a business firm. Greater attention had been paid to rising educational costs than falling subsidies. The attention on subsidies provides a clear picture of a university's "sources and uses of funds" – where the money comes from and where it goes; and the key role played by student subsidies.

In summary, while attempts had been made to determine the levels of production cost, subsidy and price (NUC, 2003; Babalola, 2000; Nwikisa, 1999), no study has been carried out to ascertain the levels in the private universities in Nigeria. It is not clear how the private universities compare with their public counterparts in Nigeria. Most of the studies on student perspectives on production cost, level of subsidy and price are for foreign countries. Only little is known about the feelings of students in Nigeria about these issues. There is need to obtain the student perspective as the consumer. On price elasticities of production cost and subsidy, Remus (1983) and Weiler (1984) found that relative tuition increases typically reduce university enrolment in the United States of America. There is need to replicate such studies in Nigeria.

From the review and appraisal the question of how higher education price is affected by production cost and subsidy remains to be answered. There is need therefore to investigate how the variables (production costs, subsidies, and price) influence access to higher education, particularly in the state and private universities in Nigeria. It is also important to cover the views of all students, both undergraduate and postgraduate on how subsidy affects the production cost and price of higher education in Nigeria.

2.7 Conceptual framework

Though quite a number of propositions on university cost have been put forward, only two basic theories appear to have emerged from the literature (Breneman, 2000). One, which dated back to the 1960s is associated with economists William Baumol and William Bowen, who argued that higher education belongs to a class of activities where competitive salaries that increase over time are paid, though not capable of experiencing productivity increase. The theory is known as the Baumol's cost disease.

Baumol's cost disease (also known as Baumol Effect) is a phenomenon described by William J. Baumol and William G. Bowen in the 1960s. It involves a rise of salaries in jobs that have experienced no increase of labour productivity in response to rising salaries in other jobs which did experience such labour productivity growth. This goes against the theory of classical economics which posits that wages are always closely tied to labour productivity changes. The rise of wages in jobs without productivity gains is caused by the necessity to compete for employees with jobs that did experience gains and hence can naturally pay higher salaries, just as classical economics predicts.

The original study was conducted for the performing arts sector. Baumol and Bowen (1966) referred to an economic dilemma, which was the problem of financing the performing arts in the face of inevitable rising unit costs. These they argued, are the result of 'productivity lag' which James Heilbrun (2003) summarised as follows: cost in the live performing arts will rise relative to costs in the economy as a whole because wage increases in the arts have to keep up with those in the general economy even though productivity improvements in the arts lag behind. Baumol and Bowen pointed out that the same number of musicians is needed to play a string quartet today as was needed in the 19th century, that is, productivity of classical music performance has not increased. On the other hand, wages of musicians (as well as other professions) have increased greatly since the 19th century when not adjusted for inflation.

In a range of businesses, workers are continually getting more productive due to technological innovations to their tools and equipment. In contrast, in some labour-intensive sectors that rely heavily on human interaction or activities, such as nursing, education, or the performing arts there is little or no growth in productivity over time. As with the string quartet example, “it takes professors that same amount of time to mark an essay now as it did in 1966” (Heilbrun, 2003).

Baumol’s cost disease is often used to describe the lack of growth in productivity in public hospitals and universities. Increases in productivity over time may occur for the following reasons: (1) increased capital per worker, (2) improved technology, (3) increased labour skill, (4) better management, and (5) economies of scale as output rises. Of the five sources of increased productivity, only economies of scale as a result of longer seasons is really effective in the live performing arts. With only that factor to rely on, the live performing arts, as Baumol and Bowen (1966) emphasised, ‘cannot hope to match the remarkable record of productivity growth achieved by the economy as a whole’. As a result, cost per unit of output in the live performing arts is fated to rise continuously relative to cost in the economy as a whole. That in brief, is the unavoidable consequence of productivity lag. Since the activities in public hospitals and universities are labour-intensive, there is little growth in productivity over time because productivity gains come essentially from a better capital technology.

Producers can react to wage inflation in a number of ways: decrease quantity/supply, decrease quality, increase price, increase non-monetary compensation or employ volunteers, increase total factor productivity. In the case of education, the Baumol Effect has been used as at least partial justification for the fact that, in recent decades, university tuition in the United States of America has risen faster than the general rate of inflation.

Baumol’s disease theory has been subjected to a lot of debate. It has been argued that higher education is a service industry, where the “product” is heavy on human interaction, requires fixed amount of time with the consumer and is run by highly educated individuals with high reservation wages. These forces they argue translate to

increases in wages and costs without any increase in outputs, leading to declines in overall productivity. On the other hand, those who do not support the Baumol's disease theory argue that higher education can indeed have increases in productivity provided certain difficulties are removed. It has been argued that funding universities based on bodies on seats rather than successful outcomes is a fundamental handicap in advancing a productivity agenda. Reallocating resources away from costly policies and practices with dubious track records toward those that show promise is another route to enhanced productivity. Institutions should be provided with incentives to pursue innovations that might cut costs. Policies that provide incentives to focus on productivity not only test the limits of the cost disease, but can provide further proof that it is not an iron law.

The recipe of growing salaries and stagnant productivity gain capitulates into a steady increase in the unit cost of university education, a problem also applicable to other handicraft activities. Proponents of this view are of the opinion that concern about inexorable rise in university education costs should be de-emphasized, while accepting this as a technical fact of economic life. Rather one should focus on the fact that many sectors of the economy do experience productivity increase, thus releasing resources over time to those sectors, such as education, which do not. However, to policymakers, this argument has not proved convincing enough, notwithstanding its accuracy.

When judged through short-term output in terms of knowledge generation, dissemination and process improvement through public service, higher education may not generate productivity increase. Dissemination however goes beyond teaching to include output of research in patenting, improvement in technology and enhancement of entrepreneurship. These outputs when consistently produced over the long term generate productivity increase.

The second theory, which emanated in the late 1970s by economist Howard Bowen, is referred to as the revenue theory of cost. This theory is based on the premise that higher institutions of education raise all the resources that they can, and expend it on activities

considered worthwhile. In this light, Breneman (2000) argues that the only way to limit university education cost increase is to limit revenues, and that there is no objective standard regarding how much higher education should cost.

In the United States of America, the real cost of higher education per full-time equivalent student has grown substantially over the last 75 years, and the rapid rise since the early 1980s is a cause of considerable public concern (Archibald and Feldman, 2008). Opinion surveys consistently find that how much one has to pay for a university education is a serious national issue. Unfortunately, there is little consensus and considerable controversy about the causes of the rapid increase in higher education costs. At the same time, for good policies to emerge, a clear understanding of the forces behind the phenomenon is required.

According to Archibald and Feldman (2008), in July 1996 congressional testimony, David Breneman explained the rise of costs in higher education by two competing theories. These are the 'cost disease' and the competing Bowen's "revenue theory of costs". In Bowen's view, the source of cost increases in higher education is the rising revenue stream made available to universities. Higher education institutions spend everything they can raise, so revenue is the only constraint on cost. One important difference between these two theories is that the cost disease theory is based on similarities between higher education and other industries, while the revenue theory of costs is based on the peculiarities of higher education as an industry. In agreement with Howard Bowen, Malcolm Getz and John Siegfried (1991) list six competing explanations, one of which is cost disease. The other five are higher education-specific explanations: cost increases arising from a change in the product mix toward more expensive disciplines; cost increases arising from shortages of higher education inputs; cost increases arising from faculties and administrators in charge having inflated desires for quality; cost increases arising from poor management in higher education; and cost increases arising from government regulations creating expanded duties for higher education.

In brief, the revenue theory of cost can be summarised by saying that given its revenue, the institution determines its costs. As the revenue accruable to a university increases, the cost of higher education rises; as a university would spend all the monies it has at its disposal, all in pursuit of perceived excellence. The more the money made available to a university therefore, the greater the expenditure it incurs, leading to a higher cost of running the university.

Developing a set of revenue-maximizing institutions, thrown into competition for students of the highest quality, Winston (2000) concluded that competition produces an emphasis on enhanced university quality, rather than on price competition *per se*. He thus explored the determinants of university costs through an analysis of the competitive market for higher education.

The remaining works outside these two theories are non-theoretical and directly empirical, often resulting in a laundry list of contributing factors. For example, financial aid, people, facilities, technology, regulations, and expectations have been identified as the six categories of 'cost drivers' (National Commission on the Cost of Higher Education, 1998). Clotfelter (1996) concluded that general quality enhancement is the main explanation for rising university education costs. Often university costs are confused with university prices. For instance when the shares of university revenues are shifting, it often results in confusion between a shift in the burden versus an increase in economic cost. A drop in government subvention per student resulting in exactly the same increase in tuition leaves the true economic cost of education unchanged.

2.8 Theoretical and applied models

According to Klein (1982), a system of equations expressing

$$\text{Output} = f(\text{factor inputs}) \quad (1)$$

$$\text{Marginal productivity} = \text{real factor rewards} \quad (2)$$

$$\text{Factor supplies} = g(\text{real factor rewards}) \quad (3)$$

may be cast in mathematical form to lay the basis for a model of a producing establishment or an industry. If there are several factors, then there will be several relationships in (2) and (3) – one for each input factor.

A definitional model was applied in this study as follows:

$$\text{Price} = \text{Production cost} - \text{Subsidy}$$

The relationship is purely one of definition and has no unknown coefficients.

Impact of cost and subsidy on price

The cost per student to the proprietor of a university may be broken to three components. These are recurrent cost (rc), annualized capital cost (cc), and any direct transfers (t) to the students, such as educational scholarships. The net unit cost for the proprietor (or unit subsidy, s) is given by the equation

$$s = rc + cc + t - p$$

where p is price defined as student fees or charges. The unit price is therefore given by the equation

$$p = rc + cc + t - s$$

The framework depicted by Figure 2.1 integrates the relationship between price and subsidy on one hand and cost on the other. In this regard, two types of cost are considered, average cost per student and total production cost. Average cost per student (c) consists of recurrent cost (rc), transfers like scholarship (t) and annualised capital cost (cc). Average cost (c) together with total student enrolment (q) gives total production cost (qc) which can be explicitly written as $q(rc + t + cc) = qc$.

The relationship between price and subsidy can be generated from Figure 2.1 by first computing total subsidy from subsidy per student (s) and total student

enrolment (q). Total subsidy is given by qs , the product of q and s . Unit price is given by the difference between unit production cost ($rc + t + cc$) and unit subsidy (s) so that total price (P) is given by $q(rc + t + cc - s)$ as shown in the focal area of Figure 2.1.

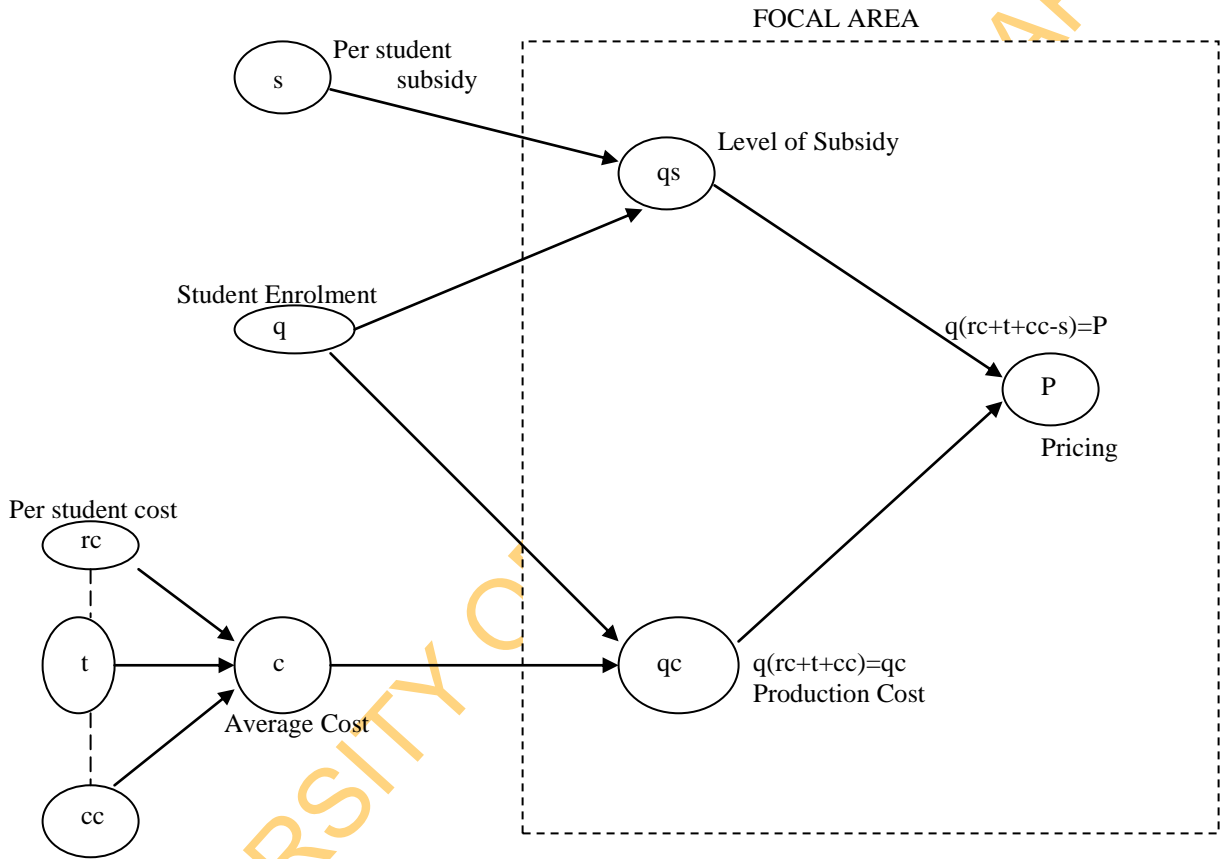


Figure 2.1: Formulation of price function

Source: Author

The revenues (R) available to a university are spent on expenditure (E) that are equal to unit cost (c) of providing university education multiplied by the number of students (q) at a given quality level, z : $E = cq$. Unit costs are, in general, a function of q and z (i.e quantity and quality).

For costs to equal revenue

$$R = E = qc(q,z)$$

According to Jimenez (1987), the general formula for subsidy constraint is

$$[c(q) - p]q = S. \quad \dots\dots\dots (1)$$

This implies that the total subsidy made by a proprietor is given by the difference between the total cost and the total revenue from students. If S (total subsidy) is held fixed, and equation totally differentiated we have

$$[c(q) - p]dq + q\left(\frac{\partial c}{\partial q}dq - dp\right) = 0$$

$$[c - p + q\frac{\partial c}{\partial q}]dq = qdp$$

$$dp = \left[\frac{c-p+q\frac{\partial c}{\partial q}}{q} \right] dq$$

By definition, elasticity, e, is given by

$$e = \frac{\partial c(q/c)}{\partial q} = \text{unit cost elasticity of quantity expansion.}$$

$$dp = \left[\frac{c-p+q\frac{ce}{q}}{q} \right] dq$$

$$= \left[\frac{c-p+ce}{q} \right] dq$$

$$\frac{dp}{p} = \frac{[c-p+ce]}{p} \frac{dq}{q}$$

Dividing both sides of equation by p

$$\frac{dp}{p} = \frac{dq [c(e+1) - p]}{q p}$$

Put $\dot{p} = \frac{dp}{p}$ = percentage change in p and $\dot{q} = \frac{dq}{q}$ = percentage change q

Rearranging gives

$$\dot{p} = \dot{q} \left[\frac{c(e+1) - p}{p} \right] \dots\dots\dots (2)$$

If $e = 0$ (perfectly inelastic), then

$$\dot{p} = \dot{q} \left[\frac{c-p}{p} \right] \dots\dots\dots (3)$$

In other words, the change in fees equals the ratio of the unit subsidy to the fees multiplied by the change in student numbers.

If $e < 1$ (inelastic), then

$$\dot{p} < \dot{q} \left[\frac{2c-p}{p} \right] \quad \text{OR}$$

$$\dot{p} = \alpha \dot{q} \left[\frac{2c-p}{p} \right] \quad \text{where } 0 < \alpha < 1 \dots\dots\dots (4)$$

If $e = 1$ (unit elasticity), then

$$\dot{p} = \dot{q} \left[\frac{2c-p}{p} \right] \dots\dots\dots (5)$$

If $e > 1$ (elastic), then

$$\dot{p} > \dot{q} \left[\frac{2c-p}{p} \right] \quad \text{OR}$$

$$\dot{p} = \beta q \left[\frac{2c-p}{p} \right] \quad \text{where } \beta > 1 \quad \dots\dots\dots (6)$$

Equation (6) describes the relationship between subsidy, cost and price. The model coefficients of equation (6), α and β , say, were estimated using the reduced form of regression analysis.

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CHAPTER THREE

METHODOLOGY

3.1 Research design

The study was conducted using survey design of *ex post facto* type. The data collected involved some phenomena already in existence and other conditions still in practice such as payment of fees and provision of subsidies by the proprietor. In this study, randomization was difficult since there was no way of ensuring that all universities were included in the study. For one thing, some of the universities had just been established and would not have adequate data required for the study. Furthermore, because of variables such as age of the university, levels of fees charged and levels of funding made available by the proprietor, controllability was not easy. The study was also correlational.

In order to obtain factual and accurate answers to the research questions in this study, a survey research design was adopted. A proper knowledge of what happened in the past would help in improving practices and assist in refining such practices to suit the present and the future.

The descriptive type of survey research design was used to:

- (a) collect detailed information on the existing practices;
- (b) identify problems on the existing levels of pricing;
- (c) observe relationships between (i) cost of producing a student; (ii) level of subsidy provided by the proprietor, and (iii) fees paid by a student.
- (d) investigate the possibilities of controlling the outcomes of the relationships.

3.2 Population

The study population comprised all the universities in Nigeria, which were categorised into three, depending on their proprietors. The three groups were federal, state and private. As at July 2011, the Federal and State Governments had a total of 72 universities – 36 federally-owned and 36 owned by state governments. There were 45 private universities in Nigeria as at that time. Out of the total number of 117 universities in Nigeria, 17 were universities of science and technology while three were universities of agriculture. All the others except five were conventional universities. These five were a military university, two universities of education, a university of petroleum resources, and an open university.

3.3 Sample and sampling procedure

A decision had to be made as to the number of universities to be included in this study. Some of the Nigerian universities had just been approved and therefore had not admitted students, while some others had been in existence for only one or two years. Facilities available in those universities were also at various levels, depending on the commitment of the proprietors and the age of the university. Such universities could not be expected to provide adequate information for the purpose of prediction. The universities considered matured enough to be included in the study were those established before 2002. The number of such universities was 46.

Purposive sampling technique was adopted to select twenty out of 46 universities in the country, which were mature for the study. The 46 universities (25 Federal, 17 State and 4 Private) as shown in Table 3.1 were those that had enrolled students for more than four years. These were considered to have adequate history of data stability. Furthermore, included in the sample were representations stratified by age of the universities, type and proprietor of university, not leaving out the need for good geographical spread. Consequently, 10 federal, seven state and three private universities were purposively selected and included in the sample.

Table 3.1: Number of Nigerian universities established before Year 2002

Year Established	1948-70	1971-80	1981-90	1991-2000	2001-02	Total
Federal	6*	8	8	3		25
State		2	7	8		17
Private				3	1	4
Total	6	10	15	14	1	46

Source: NUC Monday Bulletin, 11 July 2011

- Obafemi Awolowo University, Ile-Ife; University of Nigeria, Nsukka; University of Benin, Benin; and Ahmadu Bello University, Zaria were Regional universities prior to 1975 when they were taken over by the Federal Government.

Two out of the six universities in existence in Nigeria between 1948 and 1970 were owned by the Federal Government while the remaining four were regional universities until taken over by the Federal Government in 1975. The University of Ibadan was established by the Federal Government as a college of the University of London in 1948 but became a full-fledged university in 1962. The University of Lagos was also established by the Federal Government in 1962. The federal universities, which were initially established as regional universities were: University of Nigeria, Nsukka which was established by the Eastern Region in 1960; Ahmadu Bello University, Zaria established by the Northern Region in 1962; Obafemi Awolowo University, Ile-Ife established by the Western Region in 1962; and University of Benin established by the Midwest region in 1970.

Between 1971 and 1980, the Federal Government established eight more universities while the State Governments established two. The federal universities established during the period were the University of Calabar (1975); Bayero University, Kano (1975); University of Maiduguri (1975); Usmanu Danfodio, Sokoto (1975); University of Ilorin (1975); University of Jos (1975); University of Port Harcourt (1975); and Federal University of Technology, Owerri (1980). The Universities of Jos, Ilorin and Port Harcourt were established initially as Colleges of existing Universities. The Rivers State University of Science and Technology, Port Harcourt was established by the State

Government in 1979. Similarly, the Edo State Government established Ambrose Alli University, Ekpoma in 1980.

Eight more universities were established by the Federal Government between 1981 and 1990 while the State Governments established seven. The Federal Universities established during the period were Federal University of Technology, Akure (1981); Federal University of Technology, Yola (1981); Federal University of Technology, Minna (1982); Nigerian Defence Academy, Kaduna (1985); University of Abuja (1988); Abubakar Tafawa Balewa University, Bauchi (1988); University of Agriculture, Makurdi (1988); and University of Agriculture, Abeokuta (1988). The State Universities were Abia State University, Uturu (1981); Enugu State University of Science and Technology, Enugu (1982); Olabisi Onabanjo University, Ago-Iwoye (1982); University of Ado-Ekiti (1982); Lagos State University, Ojo (1983); Benue State University, Makurdi (1988); and Ladoke Akintola University of Technology, Ogbomoso (1990).

Between 1991 and 2000, the Federal Government established the University of Uyo (1991); Nnamdi Azikiwe University, Awka (1992); and Michael Okpara University of Agriculture, Umudike (1992). The eight States that established universities during the period were Imo (1992), Delta (1992), Ondo (1999), Kogi (1999), Bayelsa (2000), Anambra (2000), Kano (2000) and Ebonyi (2000). The period also witnessed the establishment of three private universities, namely, Babcock University, Ilishan (1999); Madonna University, Okija (1999) and Igbinedion University, Okada (1999). Bowen University, Iwo was established in 2001.

Table 3.2: Number of sampled universities and year established

Year Established	1948-70	1971-80	1981-90	1991-2000	2001-06	Total
Federal	5	2	3			10
State		1	4	2		7
Private				2	1	3
Total	5	3	7	4	1	20

Source: Derived from Table 3.1

The numbers of selected universities and years of establishment are as shown in Table 3.2. A total of 10 Federal Universities were purposively selected out of the 25 in existence while seven were chosen from the 17 State Universities. Three out of the existing four private universities were selected. The selected Universities were those located in Ibadan, Nsukka, Zaria, Ile-Ife, Benin, Kano, Abuja, Akure, Abeokuta, Owerri (Federal), Akungba, Ogbomosho, Ekpoma, Ago-Iwoye, Ojo, Enugu, Iwo, Ilishan, Okada and the Imo State University, Owerri.

Table 3.3 shows the geographical distribution of the universities that had been in existence for four years as at 2006. These were the universities considered mature for the study. Ten out of the twelve mature universities in the South West were included in the sample; while three out of the nine universities in the South South were selected. In the South East zone, four out of the ten universities were selected while two out of five were selected in the North West zone. The only university in the Federal Capital Territory was included in the sample.

Table 3.3: Distribution of sampled universities and geographical zone

	FCT	North Central	North East	North West	South East	South South	South West	Total
Number Mature for Study	1	6	3	5	10	9	12	46
Number Included in Sample	1	0	0	2	4	3	10	20

Source: Derived from Tables 3.1 and 3.2

A stratified random sampling method was adopted to select 2000 students for the study. Out of this number, 1000 were from the federal universities while 700 and 300 were from state and private universities respectively.

3.4 Instrumentation

For the purpose of this study, two sets of questionnaires were used, one for the students and the other for the officials of the universities. The questionnaires were:

- (i) Student Questionnaire on Pricing and Subsidy (SQPS)
- (ii) Nigerian University Expenditure, Revenue and Student Enrolment Questionnaire (NUERSEQ).

SQPS was administered on the students requesting for their perspectives on production cost, level of subsidy and price. Data collection format on student perspectives included the following items:

- (i) Name of university
- (ii) Department
- (iii) Course of study
- (iv) Level of study
- (v) Age
- (vi) Gender
- (vii) Relationship with sponsor
- (viii) Occupation of sponsor (where applicable)
- (ix) Income of sponsor per annum
- (x) Amount received as fees from sponsor per annum
- (xi) Total amount paid for each of the years 2000 to 2006 for
 - (a) Tuition
 - (b) Accommodation
 - (c) Feeding
 - (d) Other levies
- (xii) Classification of amount paid

- (xiii) Suggestion on right amount to be paid
- (xiv) Views on subsidy
- (xv) Total subsidy received per annum

Item (i) was meant to collect data on the proprietor of the University, whether federal, state or private; while items (ii) and (iii) provided data on the department and course being undertaken by the student respectively. Data on the level of studies were provided by item (iv); while items (v) and (vi) provided demographic data on the students. Data on the sponsors were collected through items (vii) to (ix); while items (x) to (xi) provided data on price paid by students. Items (xii) to (xv) collected data on students' perspectives.

The questionnaire completed by the universities had five sections named A to E. Section A of NUERSEQ was for the collection of general information about the university and it included the following six items:

- (i) Name of university
- (ii) Location
- (iii) Year founded
- (iv) Proprietor
- (v) Type of university
- (vi) Major sources of revenue.

Section B was to collect data on revenue from student sources for each year. Items contained in this section were:

- (i) Tuition and examination
- (ii) Accommodation
- (iii) Feeding
- (iv) Development fees

- (v) Other levies

The following items contained in Section C were to collect data on the level of revenues from other sources:

- (i) Proprietor
- (ii) Gifts and endowments
- (iii) Investment income
- (iv) Others

Section D contained the under-listed items meant to collect data on expenditure for each year.

- (i) Recurrent expenditure
- (ii) Building construction and infrastructure
- (iii) Equipment and vehicles
- (iv) Library books and journals
- (v) Others

Finally, Section E was designed to collect data on student population and included the following items:

- (i) Sub-degree
- (ii) Undergraduate
- (iii) Postgraduate
- (iv) Number of students accommodated

3.5 Validity of instrument

To ensure their face value, content and construct validity, experts in economics of education, statistics and evaluation were requested to validate the instruments. The

criticisms and suggestions made by these experts were found very useful in the preparation of the final draft of the instruments.

3.6 Reliability of instrument

Trial testing of the instruments was done using the University of Ilorin, a second generation university with conventional academic programmes. The instruments were found to be reliable with coefficients 0.75 and 0.84 for NUERSEQ and SQPS respectively.

3.7 Data collection procedure

The research instruments were administered to the respondents by the researcher and through the help of eight research assistants. The Director of Academic Planning in each of the selected universities was requested to collate data from the Bursar, Director of Works, and the Director of Physical Planning and to complete a copy of NUERSEQ for the university. Secondary data were also collected from the submissions of universities to the National Universities Commission for the University System Annual Review Meetings (USARM). It was however discovered that many items of information submitted to the Commission were not analysed and published as was done in the past. Some others could not even be located in the Secretariat of the Commission.

A total of 2,000 copies of SQPS were distributed to the students of the selected universities. Each of the twenty selected universities received 100 copies. Of the 2,000 copies of the questionnaire distributed, a total of 1,632 were completed and returned showing a response rate of 81.6 percent.

3.8 Method of data analysis

The different components of cost in each university were first determined using the framework developed in Figure 2.1. Thereafter, the production cost in each university was estimated using the average total cost per student. In other words, the total cost (recurrent and capital) in a year was divided by the total number of students in that year. In this way, the approach does not distinguish between the average cost of undergraduate and postgraduate students. The total cost did not include opportunity costs. Rather, it included amortised cost of all physical facilities (Furniture, Equipment, and Building); wage bill paid to all academic and non-academic staff; overhead costs on acquisition of relatively non-durable teaching materials, general cleaning, repairs and maintenance; vehicle running expenses; expenses on infrastructural facilities such as roads, water and electricity; expenses on research activities; library books and journals; administrative expenses; and provisions for staff retirement benefits. In determining the cost of physical facilities, furniture and equipment were amortised over a period of five years while for buildings, the period was 25 years.

Price was represented by the fees paid by a student in a year. The level of fees was determined by excluding amounts paid on accommodation and feeding since such amounts did not apply to all students. Again the average total cost approach was adopted in which the total revenue from student sources (excluding amounts paid for accommodation and feeding) was divided by the total number of students.

Subsidy was determined as the financial assistance rendered to a student in one year. The total subsidy was calculated from all non-tuition sources of revenue, including state appropriations; federal and proprietors' grants and contracts; federal, state and private financial aid to students; endowment earnings; annual gifts; auxiliary revenues and so forth. Subsidy to a student was determined by the production cost less actual money paid by a student to the university. In other words, subsidy was estimated by whatever was paid by government/proprietor to alleviate the cost burden on a student.

The first three research questions were answered with descriptive analysis; while research questions four and five were answered with multiple regression analysis. The three research hypotheses were tested at 5% level of significance using other inferential statistics, namely, “t” test, and Analysis of Variance (ANOVA).

UNIVERSITY OF IBADAN LIBRARY

CHAPTER FOUR

RESULTS AND DISCUSSION

This Chapter presents the findings and discussion of the study. Cross-sectional and longitudinal analyses of the data collected were carried out for the seven years of the study. The average production cost to a proprietor was determined by the monetary cost of delivering a year of university education to a student. This included the salaries and allowances of all academic and non-academic staff, overhead costs on acquisition of teaching materials, general cleaning, repairs and maintenance; expenses on research activities; library books and journals; as well as amortised costs of all physical facilities (Furniture, Equipment, and Building). The price was determined by the fees and other charges paid to the university by a student or sponsor for a year. Included were tuition, registration, examination and laboratory bench fees as well as cost of identification cards and development levies; but excluding accommodation and feeding. Subsidy was determined by what government/proprietor gave to alleviate the production cost burden. The analysis was done in a way that attempted to answer the research questions of the study directly.

4.1 Analysis of production cost, subsidy and price levels in Nigerian universities

Research question 1: What are the levels of production cost, subsidy and price in Nigerian universities?

4.1.1 Production costs

Table 4.1: Average production costs in federal, state and private universities (Naira)

Year	Federal	State	Private
2000	164,957	25,853	100,430
2001	89,788	35,083	334,742
2002	81,609	46,011	323,935
2003	97,479	26,776	244,598
2004	111,141	50,263	236,594
2005	121,766	57,940	260,879
2006	169,211	78,989	240,762
Average	119,421	45,845	248,849
SD	35,157	18,901	76,835

Source: Author's Fieldwork, 2008

Table 4.1 shows the average production costs over the years for the federal, state and private universities. Production cost in the federal universities was found to contrast sharply with those of the state and private universities. The average production cost in the federal universities during the period of study was found to be ₦ 119,421 with a standard deviation of 35,157. State universities had an average production cost of ₦ 45,845 with a standard deviation of 18,901. In the private universities, the mean production cost was found to be ₦ 248,849 with a standard deviation of 76,835. It was observed that the production cost in the federal universities was more than double what obtained in the state universities during the period of study. Similarly, production cost in the private universities was more than double that of the federal universities.

Average production costs in the federal universities decreased in years 2001 and 2002 but were on the increase thereafter. The decrease might be connected with the level of funding from the Federal Government while increases could be as a result of improved funding. For instance, there were no capital grants released to the federal universities in year 2002. Data in respect of the state universities showed a steady increase from year to year except in year 2003 when there was a radical fall in the production cost. The average production cost in the private universities attained its maximum value in 2001 but

showed a steady decrease until year 2005 after which it dropped. This might be as a result of increases in the enrolment levels and reduction in the cost of development of physical and other facilities.

The results revealed large standard deviations in the values of the production costs, showing that there were wide differences within the universities. In the federal universities, there were wide gaps in the production costs between the first, second and third generation universities since government funded these universities differently using slightly different parameters. State universities also received different levels of grants from their proprietors and these could be responsible for the observed wide deviations. However, the state universities had the highest consistency in terms of production cost; hence they exhibited the least variability. This has perceived quality implications. This suggests that quality among the group of state universities will be quite close.

There was high variability in the production cost in the private universities which had the widest deviation as a result of their age and different stages of development. The size of the sample could also be a factor. In all, variable quality in the universities could also account for the observed wide deviations.

Figure 4.1 depicts data of Table 4.1 pictorially. Average production costs in the federal and state universities show an increasing trend in the period of study. In the private universities, average production cost attained its maximum value in year 2001 and has since shown a decreasing trend.

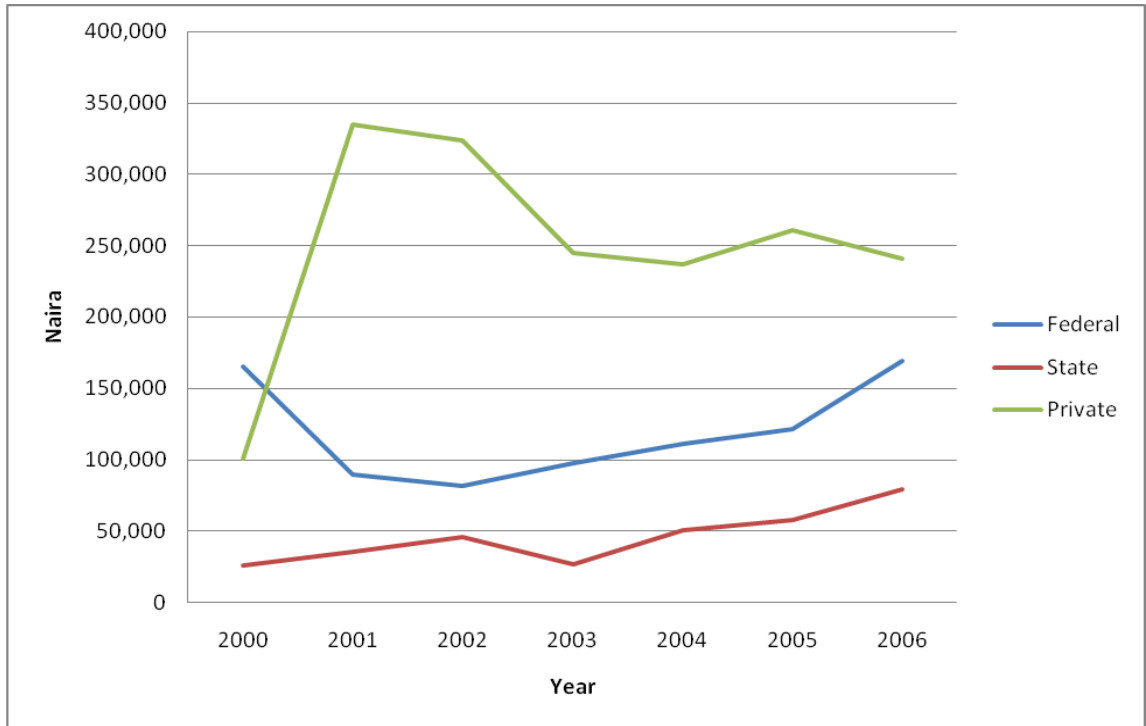


Figure 4.1: Average production costs in federal, state and private universities, 2000-2006
Source: Derived from Table 4.1

4.1.2 Subsidies

Table 4.2: Average subsidy levels in federal, state and private universities (Naira)

Year	Federal	State	Private
2000	153,277	22,168	96,716
2001	74,503	31,570	116,767
2002	76,141	40,375	86,452
2003	84,705	18,192	(9,427)
2004	96,679	36,987	(23,703)
2005	106,167	27,487	2,966
2006	150,444	48,668	2,680
Average	105,988	32,207	38,922
SD	186,529	32,817	155,203

Source: Author's Fieldwork, 2008

Subsidy was found to be higher in the federal than in the state or private universities. State universities reflected the least average subsidy over the period of study. As shown in Table 4.2 the average level of subsidy in the federal universities was ₦ 105,988 between year 2000 and year 2006. In the state and private universities, the values were ₦ 32,207 and ₦ 38,922 respectively. For each year, the level of subsidy in the federal universities was consistently higher than the level in the state universities. The average level of subsidy in the federal universities was more than three (3.3) times what obtained in the state universities and close to three (2.7) times that of the private universities.

Subsidy in the federal universities was higher in year 2000 than subsidy in the next six years. Subsidy in the federal universities dropped sharply in year 2001 but started to increase gradually thereafter. This coincided with the period when the federal universities were trying to enhance their internally generated revenue in a bid to meet the guidelines of the National Universities Commission, which stipulated that each university should generate a minimum of 10 percent of recurrent costs from internal sources. Charges, such as development levy payable by students were then introduced. A substantial increase in subsidy was observed in the federal universities in year 2006. The value for year 2006 was about 50 percent higher than that of the previous year. Increases in the personnel costs in the federal universities without the corresponding increases in fees and other charges paid by the students could be responsible for the observed increases in subsidy.

As in the case of production cost, state universities again had the least value of variability in subsidy provision. Subsidy in the state universities fluctuated between about ₦ 18,000 and ₦ 40,000 during the period between year 2000 and 2005. An increase of about 77 percent in subsidy was observed in state universities in year 2006 over the corresponding 2005 value.

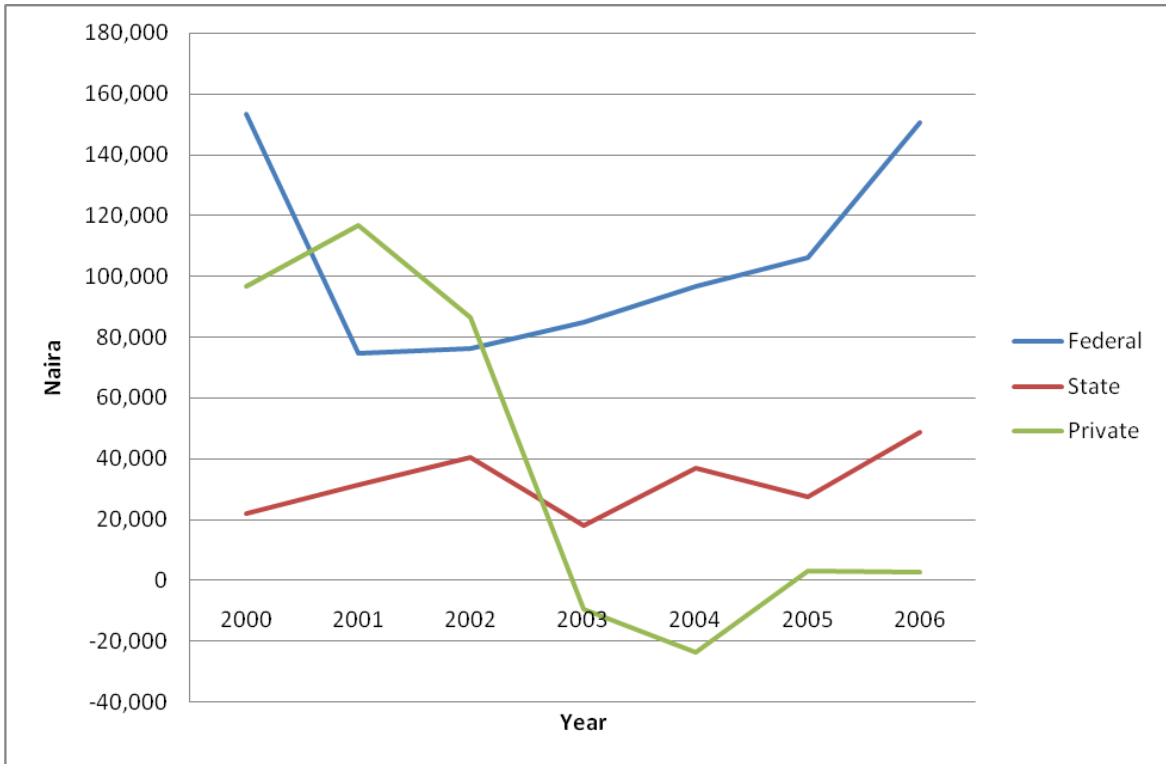


Figure 4.2: Average subsidies in federal, state and private universities, 2000-2006

Source: Derived from Table 4.2.

In the initial period (Years 2000 to 2002), subsidy in the private universities was found to be high, even higher than what obtained in the federal universities. Understandably, the private universities were just starting and had to spend huge sums of money for capital development. These sums could not all have been passed on to the students at least not initially. The negative subsidies in years 2003 and 2004 in the private universities showed that on the average, the private universities received more from the students than what it cost to train them in those years. This could be that the proprietors of the private universities were out to recover their capital outlay as quickly as possible and make profit where possible. The level of subsidy in the private universities was however showing a decreasing trend. Figure 4.2 depicts the data in Table 4.2 graphically. It shows a decrease in subsidies in the federal universities in years 2000 and 2001 followed by a steady increase between years 2001 and 2005 and a sharp increase between years 2005 and 2006. Subsidies in the state universities ranged between ₦ 22,000 and ₦ 49,000 throughout the period of study. In the private universities, a decreasing trend in subsidies

was observed between years 2001 and 2004 followed by a moderate increase in the following year, 2005. In 2006, subsidies in private universities were almost at the 2005 levels for private universities.

In all, the levels of subsidy in the various universities could have been influenced by the levels of funding received and the inherent motives of the proprietors for establishing the universities. While the Federal Government of Nigeria insisted on its tuition-free policy in the federal universities, leading to higher subsidies, private universities tended to give lower subsidies apparently in a bid to recover their initial capital outlay on establishing the universities.

4.1.3 Price

Table 4.3: Average price levels in federal, state and private universities (Naira)

Year	Federal	State	Private
2000	11,680	3,685	3,715
2001	15,284	3,514	217,975
2002	5,468	5,636	237,483
2003	12,775	8,584	254,025
2004	14,462	13,276	260,297
2005	15,599	30,453	257,914
2006	18,767	30,321	238,082
Average	13,433	13,638	209,927
SD	4,175	11,919	92,127

Source: Author's Fieldwork, 2008

Average prices in the federal and state universities were found to be almost the same. The private universities however charged about 16 (15.6) times what the federal universities charged the students. The average price in the federal universities was ₦ 13,433 between years 2000 and 2006; while those of state and private universities were ₦ 13,638 and ₦ 209,927 respectively. Table 4.3 is depicted graphically by Figure 4.3.

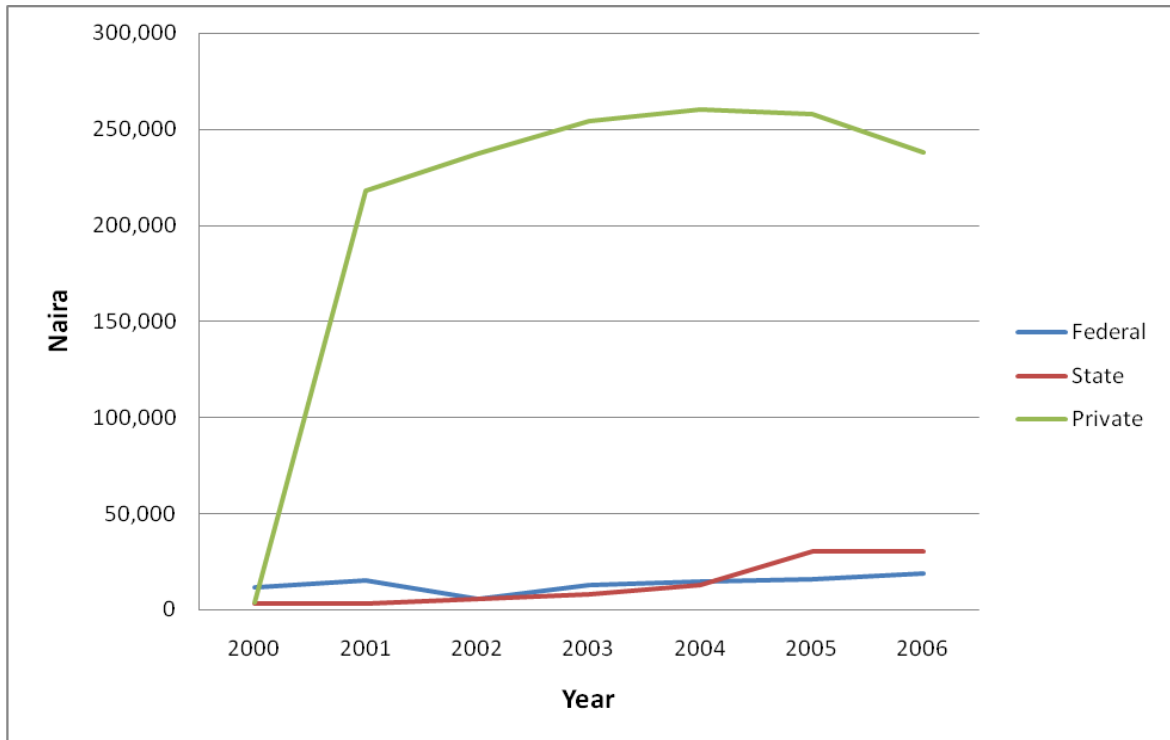


Figure 4.3: Average prices in federal, state and private universities, 2000-2006

Source: Derived from Table 4.3.

The tuition-free policy of the Federal Government must have accounted for the low prices observed in the federal universities. The highest prices were recorded by the private universities. This might be an attempt to off-set part of the huge capital outlay required to establish a university. Variability in prices was least in the federal universities.

4.2 Level of subsidy in public and private universities

Research question 2: What is the difference between the levels of subsidy in public and private universities in Nigeria?

Table 4.4: Average subsidy levels in public and private universities (Naira)

Year	Public	Private
2000	87,722	96,716
2001	53,036	116,767
2002	58,258	86,452
2003	51,448	(9,427)
2004	66,833	(23,703)
2005	66,827	2,966
2006	99,556	2,680
Average	69,097	38,922
SD	18,128	155,203

Source: Author's Fieldwork, 2008

Note: Figures in parentheses greater revenue from students than production cost

Public universities gave about double (1.8 times) the subsidy given by the private universities during the period. The average subsidy provided by the public universities was found to be ₦ 69,097 between 2000 and 2006; while that of the private universities was found to be ₦ 38,922. Between years 2000 and 2002 however, subsidies in the private universities were high, higher than what the public universities gave in those years. The private universities were just being established and must have invested huge sums of money in terms of buildings, equipment and teaching materials in their initial years of existence. The next two years witnessed negative subsidies in the private universities, implying that either the fees were too high or the level of expenditure in those years was relatively low. Public universities were more consistent in giving subsidies to their students than their private counterparts.

4.3 Student perspectives on production cost, subsidy and pricing

Research question 3: What are the student perspectives on production cost, level of subsidy and pricing in Nigerian universities?

4.3.1 Characteristics of students

The findings from the student questionnaire (SQPS) are presented showing the level of study, bio-data, sponsorship and the student perceptions of subsidies in what follows. About half (896 or 54.9%) of all the respondents were from the federal universities while more than one-third (495 or 30.3%) were from the state universities. The number of respondents from the private universities was 241 or 14.8 percent of the total.

Average age

The average age of the respondents was found to be 24 years between year 2000 and 2006. More than 63 percent of the students who responded were less than 25 years old. In the three categories of universities the students clustered between 20 and 24 years of age. That age group accounted for 45.5% in Federal Universities, 58.4% in State and 64.2% in the private universities. Students aged between 25 and 29 years were next in proportion in the federal and state universities, constituting 32.5% and 32.4% respectively. The findings also showed that more mature students found their way to federal universities while private universities were populated by younger students. The overall average age of the respondents was also influenced by the postgraduate students in the federal universities. Average age in the federal universities stood at 25 years whereas the values for the state and private universities were 24 and 22 respectively.

Distribution by level

The respondents included 66 (5.3%) postgraduate students. Majority of the respondents were in the 400 to 600 levels. A total of 502 (40%) of the students that completed the questionnaire were at the 400 to 600 levels of study. They were therefore either in their final years of study or close to completing their courses. The implication of this is that they had been long enough in their respective Universities to supply adequate information for the purpose of this study. The distribution by level of the other respondents was 15.8%, 26.6% and 12.4% for the 300, 200 and 100 levels respectively.

About half of the respondents were from the Federal Universities while only 180 students or about 14.3% were from the private universities.

Gender

Close to two-thirds (63.2%) of the respondents were male students leaving only 36.8% as female. In the federal universities, 69.1% of the student respondents were male. Two out every five students who responded from the state universities were female. In the private universities however, the distribution between male and female was almost even (49.7% female and 50.3% male).

Sponsorship

The impact of government sponsorship was not felt by the students as government sponsorship accounted for a mere 1% of all the respondents. Most (87.6%) of the respondents were sponsored by their parents or guardians. A total of about one-tenth of the students (128) sponsored themselves in their universities.

Average household income

The average household income of the respondents was found to be ₦ 1,005,311 per annum. A total of 616 (58.9%) of the sponsors earned less than ₦ 1,000,000 per annum. In the private universities however, about one-third of the sponsors earned ₦2,000,000 or above as against 15% and 12.6% in the federal and state universities respectively. A large proportion of the sponsors of students in the federal (34.9%) and state (42%) universities earned less than ₦ 500,000 per annum. Almost three-quarters (70%) of sponsors in private universities earned more than ₦ 1 million compared to 38.9% in federal and 32.8% in state universities. On the other hand, close to two-thirds (61.1%) in federal and more than two-thirds in state (69.2%) universities earned below ₦ 1 million as against less than one-third (29.7%) in private universities. It would appear only the 'rich' attended the private universities. This has implications for further studies on the question of access.

It was further observed that close to 90 percent of the parents/guardians were either self-employed or in government service. In the federal and state universities, there were more parents/guardians in government employment than the numbers who were self employed. This contrasts sharply with the situation in the private universities where almost half

(47.6%) of the parents/guardians were self employed as against slightly more than one-third (36.1%) in government service. Only 3.8% of the parents/guardians were politicians.

4.3.2 Perspectives on production cost, subsidy and pricing

Amount paid

Generally, it appears students perceived fees as high especially in the private universities. Only 2.4% of the students considered fees paid as low. Overall, more than half of the students considered the fees as high while 45.6% were of the view that the fees were adequate. In the federal universities, 38.2% of the students considered the fees high. The proportion in the state universities was 63.9%. This is surprising, given that the period average was about the same in the federal and state universities. It is worthy of note however that as high as 70.1% of the students in the private universities considered their fees high. Close to 60% of the students in the federal universities were of the view that fees paid were adequate.

Subsidy

More than 62% of the students were of the view that their fees were not being subsidised. The proportion increased from 54.7% in the federal, to 67.8% in the state, and to 73.8% in the private universities.

Table 4.5: Ways fees are being subsidised by proprietors, number (%)

Ways	Category of University			Total
	Federal	State	Private	
Tuition free	111(37.6)	45(26.8)	8(17.8)	164(32.3)
Bursary	93(31.5)	89(53.0)	18(40.0)	200(39.4)
Scholarship	60(20.3)	18(10.7)	10(22.2)	88(17.3)
Students Financial Aid	31(10.5)	16(9.5)	9(20.0)	56(11.0)
Total	295(100.0)	168(100.0)	45(100.0)	508(100.0)

Source: Author's Fieldwork 2008

About one-third of the respondents enjoyed tuition free education as shown in Table 4.5 while 56.7% were on bursary/scholarship and 11% received student financial aid. Those who enjoyed free tuition were highest in the federal universities. Financial aid was not perceived to be popular. Data of Table 4.5 are depicted graphically in Figure 4.4.

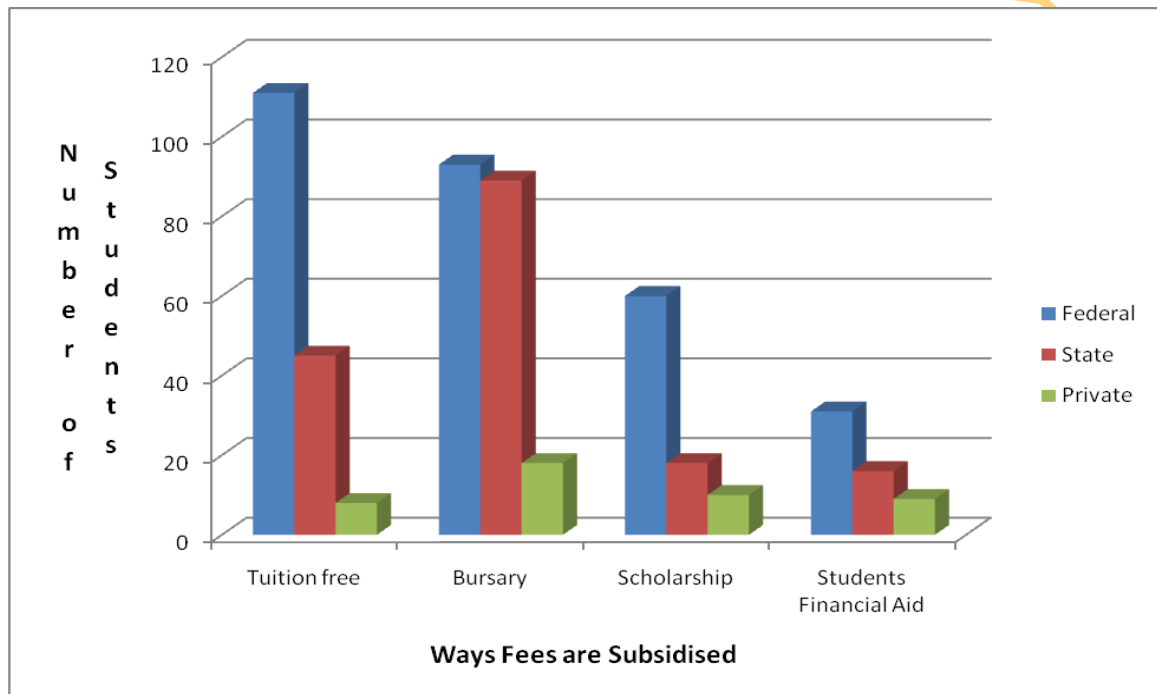


Figure 4.4: Perceived ways fees are subsidised
Source: Derived from Table 4.5.

Table 4.6: Perceived level of subsidy by proprietor of university, number (%)

Perceived level (N)	Category of University			Total
	Federal	State	Private	
Less than 10,000	169(51.7)	127(58.8)	19(24.1)	315(50.6)
10,000 to 50,000	106(32.4)	45(20.8)	26(32.9)	177(28.5)
50,001 to 100,000	30(9.2)	25(11.6)	19(24.1)	74(11.9)
100,001 to 150,000	16(4.9)	12(5.6)	7(8.9)	35(5.6)
150,001 to 200,000	4(1.2)	3(1.4)	5(6.3)	12(1.9)
200,001 & above	2(0.6)	4(1.9)	3(3.8)	9(1.4)
Total	327(100.0)	216(100.0)	79(100.0)	622(100.0)

Source: Author's Fieldwork 2008.

Table 4.6 shows that more than half (50.6%) of the respondents were of the view that the values of the subsidy they received were less than ₦ 10,000 annually. The students' perceived average subsidy (₦ 33,658) was about half the observed level of subsidy which averaged ₦ 59,039 during the period between Year 2000 and 2006. The perceived average subsidy was highest in the private universities (₦ 59,810) and lowest in the federal universities (₦ 28,823). In the state universities, the perceived average was ₦ 31,412. It would appear students have a wrong impression about the magnitude of subsidy provided by the proprietors. Data from the universities showed that subsidy was highest in the federal universities and not in the private universities as perceived by the students. Only a negligible 1.4% thought the value was more than ₦ 200,000. These are depicted pictorially by Figure 4.5.

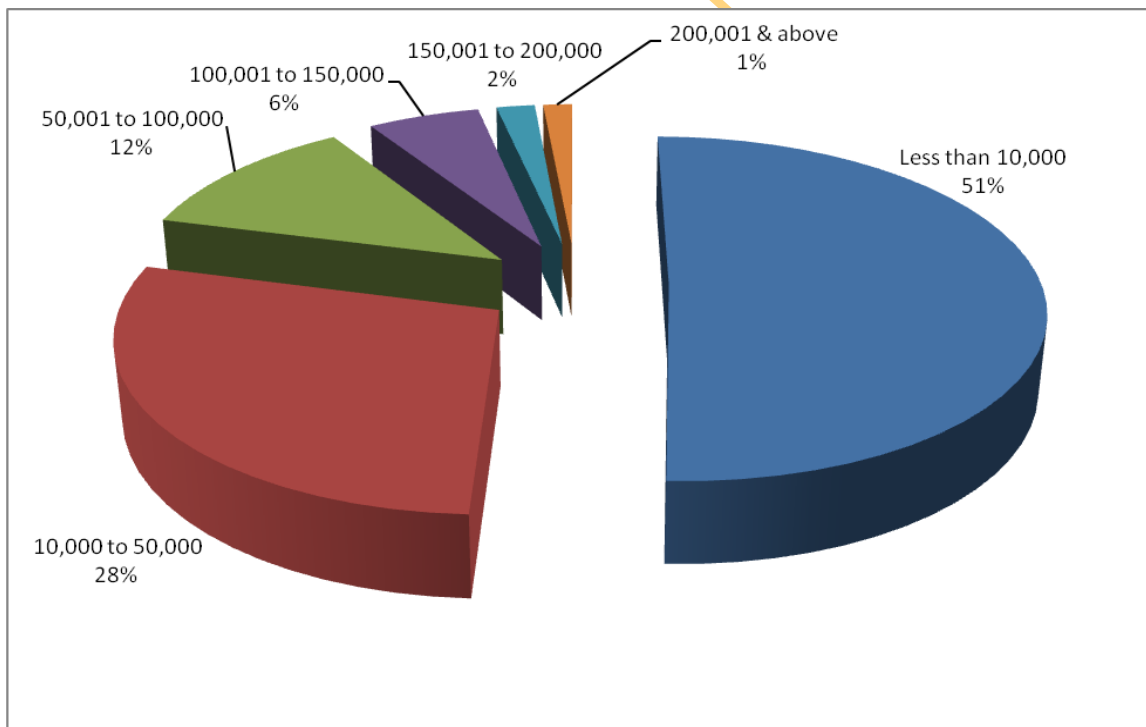


Figure 4.5: Perceived levels of subsidies in Naira

Source: Derived from Table 4.6.

4.4 Production cost and subsidy as determinants of pricing level

Research question 4: To what extent do production cost and subsidy determine the pricing level of university education in Nigeria?

The extent to which production cost and level of subsidy determine the pricing level was investigated by running a linear regression in which the pricing level (p) was the dependent; production cost (X_c) and subsidy (X_s) were independent variables; the following result in Table 4.7 was obtained.

Table 4.7: Summary of regression analysis of price on production cost and subsidy for all universities

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-39405.4	14841.166		-2.655	.016
Prodcost	1.284	.075	.939	17.020	.000
Subsidy	-.663	.122	-.300	-5.434	.000
Multiple R	=	0.972			
R Square (R^2)	=	0.945			
Adjusted R^2	=	0.939			
Standard Error	=	33097.43			

Source: Author's Fieldwork 2008.

Production cost and subsidy were highly and positively correlated ($R=0.972$) with price. They have the potential of explaining the level of pricing. They could explain 94.5 percent of the total variance in price ($R^2=0.945$) leaving only 5.5 percent to other factors and residuals.

The positive correlation between production cost and pricing level implies that the higher the production cost, the higher the pricing level of university. Also the negative correlation between production cost and subsidy implies that the higher the subsidy, the lower the pricing level.

Overall, production cost ($\beta = 0.939$) made a higher significant contribution to determining of pricing level than subsidy ($\beta = -0.300$).

Table 4.8 shows a summary of the result for federal universities.

Table 4.8: Summary of regression analysis of price on production cost and subsidy for federal universities

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	7281.788	5592.997		1.302	.263
Prodcost	-.008	.075	-.069	-.110	.918
Subsidy	.056	.050	.713	1.134	.320
Multiple R	=	0.659			
R Square (R^2)	=	0.435			
Adjusted R^2	=	0.152			
Standard Error	=	3844.16			

Source: Author's Fieldwork 2008.

In the federal universities, production cost and subsidy were also correlated positively ($R=0.659$) with price. They have the potential of explaining the level of pricing. However, they could explain only 43.5 percent of the total variance in price ($R^2=0.435$) leaving 56.5 percent to other factors and residuals. Subsidy made a higher contribution ($\beta=0.713$) to price than production cost ($\beta=-0.69$). The contributions were however not statistically significant at 5% level.

A summary of the result for state universities is shown in Table 4.9.

Table 4.9: Summary of regression analysis of price on production cost and subsidy for state universities

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-8215.715	4447.248		-1.847	.138
Prodcost	1.003	.174	1.591	5.753	.005
Subsidy	-.694	.225	-.852	-3.083	.037
Multiple R	=	0.960			
R Square (R ²)	=	0.921			
Adjusted R ²	=	0.882			
Standard Error	=	4100.52			

Source: Author's Fieldwork 2008.

Production cost and subsidy are highly and positively correlated ($R=0.960$) with price in the state universities. They have the potential of explaining the level of pricing. They could explain 92.1 percent of the total variance in price ($R^2=0.921$) leaving only 7.9 percent to other factors and residuals. Production cost contributed more ($\beta=1.591$) than subsidy ($\beta=-0.852$) to price. The contributions were found to be statistically significant at 5 percent level.

The result for private universities is summarised in Table 4.10.

Table 4.10: Summary of regression analysis of price on production cost and subsidy for private universities

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-144852	21068.535		-6.875	.002
Prodcost	1.620	.081	.999	19.986	.000
Subsidy	-.142	.111	-.064	-1.279	.270
Multiple R	=	0.995			
R Square (R ²)	=	0.990			
Adjusted R ²	=	0.985			
Standard Error	=	15195.969			

Source: Author's Fieldwork 2008.

In the private universities, production cost and subsidy are highly correlated positively ($R=0.995$) with price. They have the potential of explaining the level of pricing. They could explain 99.0 percent of the total variance in price ($R^2=0.990$) leaving only 1.0

percent to other factors and residuals. Production cost contributed significantly ($\beta=0.999$) to price at 5 percent level but the contribution of subsidy ($\beta=-0.064$) was not statistically significant.

4.5 Elasticities of price with respect to production cost and subsidy

Research question 5: What are the price elasticities of production cost and subsidy in Nigerian universities?

To determine the elasticities of price with respect to production cost and subsidy, a regression was run using the natural logarithms of price, production cost and subsidy. According to Chiang and Wainwright (2005), for a function $y = f(x)$, the point elasticity (ϵ_{yx}) of y with respect to x is

$$\epsilon_{yx} = \frac{d(\ln y)}{d(\ln x)}$$

A summary of the result obtained for all universities was as shown in Table 4.11.

Table 4.11: Summary of regression analysis of logarithm of price on logarithms of production cost and subsidy for all universities

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-1.585	1.347		-1.176	.257
lnProdcost	1.628	.237	.824	6.866	.000
lnSubsidy	-.470	.155	-.364	-3.033	.008
Multiple R	=	0.878			
R Square (R ²)	=	0.771			
Adjusted R ²	=	0.742			
Standard Error	=	34419			

Source: Author's Fieldwork 2008.

The value of the elasticity of price with respect to production cost was obtained as 0.824. This means that unit price increased by 0.8 for every one percent increase in production cost. The price elasticity of subsidy was -0.364; which means that unit price declined by 0.4 for every one percent increase in subsidy. The result shows that price was responsive

to both production cost and subsidy. Furthermore, the results are significant for both production cost and subsidy at 5% level.

Table 4.12 Summary of regression analysis of logarithm of price on logarithms of production cost and subsidy for federal universities

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.670	2.899		.231	.829
lnProdcost	.176	1.039	.125	.169	.874
lnSubsidy	.501	.757	.491	.662	.544
Multiple R	=	0.600			
R Square (R ²)	=	0.361			
Adjusted R ²	=	0.041			
Standard Error	=	0.17040			

Source: Author's Fieldwork 2008.

Table 4.12 shows a summary of the result obtained for federal universities.

In the federal universities, the elasticity of price with respect to production cost was found to be 0.125 while that of subsidy was 0.491. This implies that unit price increased by 0.1 for every one percent increase in production cost and by 0.5 for every one percent increase in subsidy in the federal universities. The value of the coefficient of elasticity with respect to subsidy was found to have the wrong sign. It is however not significantly different from zero. In other words, subsidy does not really affect price when it is not different from zero. Zero is the only figure that is both positive and negative. The phenomenon may be due to the power of both the student and staff unions driving the political provision that university education is free in federal universities. Price was found to be fairly responsive to both production cost and subsidy. Subsidy however was found to be four times more potent to change price than production cost. The results for the federal universities show that production cost was also not significant at 5% level.

Table 4.13 Summary of regression analysis of logarithm of price on logarithms of production cost and subsidy for state universities

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-2.623	2.280		-1.150	.314
lnProdcost	3.294	.867	1.484	3.799	.019
lnSubsidy	-1.916	.931	-.805	-2.059	.109
Multiple R	=	0.910			
R Square (R ²)	=	0.827			
Adjusted R ²	=	0.741			
Standard Error	=	.20135			

Source: Author's Fieldwork 2008.

A summary of the result obtained for state universities is as shown in Table 4.13.

Price was found to be elastic with respect to production cost in the state universities. The elasticity of price with respect to production cost was found to be 1.484. The elasticity of price with respect to subsidy was found to be -0.805 which was less than 1. This means that in the state universities, unit price increased by 1.5 for every one percent increase in production cost and declined by 0.8 for every one percent increase in subsidy. At 5% level, the result was significant for production cost. For subsidy however, although it has the right sign, it was not significant.

Table 4.14: Summary of regression analysis of logarithm of price on logarithms of production cost and subsidy for private universities

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-14.954	.649		-23.026	.002
lnProdcost	3.885	.116	.961	33.601	.001
lnSubsidy	-.182	.029	-.179	-6.269	.025
Multiple R	=	0.999			
R Square (R ²)	=	0.998			
Adjusted R ²	=	0.997			
Standard Error	=	0.04886			

Source: Author's Fieldwork 2008.

Table 4.14 shows a summary of the result obtained for private universities.

In the private universities, price was found to be significantly responsive to both production cost and subsidy. The elasticities of price with respect to production cost and subsidy were found to be 0.961 and -0.179 respectively. This implies that unit price increased by .96 for every one percent increase in production cost in the private universities and declined by 0.2 for every one percent increase in subsidy. The results were significant at 5% level for both production cost and subsidy.

For ease of comparison, the elasticities of price with respect to production cost and subsidy for the three categories of universities and all universities are as summarised in Table 4.15. The elasticity of price with respect to production cost was found to be highest in the state universities ($\epsilon = 1.484$) and lowest in the federal universities ($\epsilon = 0.125$).

Table 4.15: Elasticity of price with respect to production cost and subsidy

Proprietor	Elasticity of Production Cost	Elasticity of Subsidy
Federal	0.125	0.491
State	1.484	-0.805
Private	0.961	-0.179
All	0.824	-0.364

Source: Author's Fieldwork 2008

Hypothesis I: There is no significant variation in the production cost of Nigerian universities.

Table 4.16: Summary analysis of production cost in Nigerian universities

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	147875792094.4	2	73937896047.21	29.59	.000
Within Groups	44981342326.34	18	2498963462.57		
Total	192857134420.8	20			

Source: Author's Fieldwork 2008

Table 4.17: Multiple comparisons of production costs in Nigerian universities

Proprietor (I)	Proprietor (J)	Mean Difference (I-J)	Std. Error	Sig.
Federal	State	73576.06*	21428.57	.042
	Private	-129427.47*	21428.57	.001
State	Federal	-73576.06*	21428.57	.042
	Private	-203003.53*	21428.57	.000
Private	Federal	129427.47*	21428.57	.001
	State	203003.53*	21428.57	.000

*significant at 5% level

Source: Author's Fieldwork 2008.

The value of F required for significance with 2 and 18 degrees of freedom is 3.55 or more at 0.05 level. As shown in Table 4.16, a significant variation in production costs exists among the universities at 5% level of significance ($F=29.59$, $p<.05$). Hypothesis I is therefore rejected.

Table 4.17 shows that the production costs in federal universities are higher than in state universities and this difference is significant at 5% ($p<0.05$). The production costs in private universities are also higher than those of federal and state universities and this difference is significant at 5% ($p<0.05$). This may be as a result of new developments going on in private universities, higher salaries in the case of some to attract quality staff and low enrolment.

Hypothesis II: There is no significant difference in the level of subsidy between federal and state universities.

Table 4.18: Summary analysis of subsidy in Nigerian universities

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	23302101602.21	2	11651050801.11	7.53	.002
Within Groups	27839651864.36	18	1546647325.80		
Total	51141753466.57	20			

Source: Author's Fieldwork 2008.

Table 4.19: Multiple comparisons of subsidy in Nigerian universities

Proprietor (I)	Proprietor (J)	Mean Difference (I-J)	Std. Error	Sig.
Federal	State	73781*	11034.77	.005
	Private	67066*	11034.77	.009
State	Federal	-73781*	11034.77	.005
	Private	-6715	11034.77	.970
Private	Federal	-67066*	11034.77	.009
	State	6715	11034.77	.970

*significant at 5% level

Source: Author's Fieldwork 2008.

Tables 4.18 and 4.19 show that there is a significant difference in the subsidy given by the various proprietors ($F=7.53$, $p<0.05$). The federal universities gave more subsidy than the state and the difference was found to be significant at $p<0.05$.

The hypothesis is rejected and the conclusion is reached that there is a significant difference between federal and state universities in subsidy received at 5% level of significance ($p<0.05$).

Hypothesis III: There is no significant difference in the level of subsidy between public and private universities.

Table 4.20: Levels of subsidy in public and private universities

Group Statistics

	Category	N	Mean	Std. Deviation	Std. Error Mean
Subsidy2	Public	7	69097	18128	6851.91
	Private	7	38922	155203	22106.27

Independent Samples Test

		t-test for Equality of Means			
		t	df	Sig. (2-tailed)	Mean Difference
Subsidy2	Equal variances assumed	1.26	12	.065	30175.60

Source: Author's Fieldwork 2008.

The subsidies provided by the public and private universities were found to be significantly different at 5 percent level as shown in Table 4.20. Hypothesis III is therefore rejected. The mean subsidy in the private universities was found to be 56 percent of that of public universities. In other words, private universities gave about half the subsidy in the public universities. Furthermore, public universities were more closely clustered while the private universities had too many outliers. The small sample size for private universities could be a contributory factor.

4.6 Discussion of findings

The findings of the study are discussed under the following sub-headings:

Production cost

Subsidies

Price

Student perspectives

Price elasticities with respect to production cost and subsidy

Access

Production cost

On average, production cost over the period of study in the private universities was more than double that of the federal universities and more than five times that of state universities. This may be due to the relative youth of the private universities with a lot more capital spending within their short period of existence. Similarly, average production cost in federal universities over the period of study was more than double that of state universities. This is due to the higher level of funding in federal universities. The varying production cost will affect the level of service delivery and hence the quality of education given to the students.

The variability of data among the private universities was however extremely high as the standard deviation was more than double that of the federal universities and about four times that of state universities. This implies that there was much higher variation in production cost among the private universities when compared with either federal or state universities. This also suggests that quality of service delivery in private universities was highly variable. Furthermore, it is noted that the standard deviation of production cost was least in state universities suggesting that their production costs were very close. This also implies that the quality of their service delivery would be very similar.

The trend in federal universities started with a spike in 2000 and a sudden drop thereafter for the next two years before increasing again over the next four years of the study period. Of note is the effect of salary increases on production cost in federal universities which accounted for the spike experienced in year 2000. There was another salary increase in 2005/2006. In the private universities however, the trend in the average production cost was a rapid increase in the first three years of the study before falling over the next two years, rising again in 2005 and dropping slightly in 2006. Increases in the earlier years can be explained by the demand for high capital costs of the new private universities. These set-up costs would be seen to decline over the next few years. During

the period of study, the trend in average production cost in the state universities was averagely on the increase except for a decrease in year 2003. This can be explained by possible salary increases in federal universities, for instance in 2001 following closely the increases in 2000 and 2006 for 2005 in federal universities.

Subsidies

In contrast to production cost, average subsidy levels were highest in federal universities. Indeed, on the average subsidy level in federal universities was about three times the average values in state and private universities respectively. In spite of this, the standard deviation of subsidies in federal universities was almost the same as private universities indicating there was very high variability in subsidy in private universities. In contrast, the standard deviation of subsidy in state universities was about one-sixth of the value of the federal universities. This suggests that subsidy levels among state universities were very close. Indeed, among private universities, there were two years where on average, there were negative subsidies (2003, 2004) meaning that for those two years, fees were higher than the production costs.

While the trend of subsidy level in federal universities was close to that of private universities, in state universities, the trend was almost similar but for the decrease in year 2005. These findings suggest that in public universities in Nigeria, there was some element of subsidy. However as was seen in this study the impact of subsidies received by students in university education was not felt by students who were the beneficiaries. This may be due to the fact that well known types of subsidies in form of student financial aids like scholarships, bursaries and loans which used to be given by government were no longer common. Their absence could and indeed actually impaired access to university education.

Price

Price is an important policy variable in increasing access to education generally and higher education in particular. Improving access to higher education is important to development because in higher education, the results of research lead to development of

intellectual property for job and wealth creation emanating from entrepreneurship and innovation. The results of this study show that prices in higher education in Nigeria were negatively related to subsidy and positively related to production cost. This means that minimizing prices in higher education will improve higher education access. This can be done by employing as many types of subsidy as possible than hitherto done. Currently, the recurrent costs of education by government and other agencies contain less of such subsidy types as scholarships, bursaries and other student financial aids. If these were there, they would have maximized subsidies and thus minimize prices leading to improved access. The current practice whereby government just pays staff salaries and fund infrastructures without charging tuition fees and hence does not deem it fit to award scholarships, bursaries and other financial aids to students, inhibits the maximization of subsidies in higher education in Nigeria. There is need that government should look at this practice again even though it is politically sensitive. Government will need to adopt a pragmatic and phased approach to looking at this issue. In this regard, it is worth noting that the celebrated success of free primary education in the old Western Region in the first republic was based on funds pooling through taxation. This study is of the view that such an approach can be adopted if Government insists on free higher education. However, a more practical approach is to maximize subsidy by awarding scholarships, bursaries and giving institutional loans to students while charging tuition fees. A special study can be set up by Government to suggest pragmatic means of funding higher education in Nigeria. This will strengthen the hands of Government to meet the demands of higher education in a globalised world of the 21st century.

Student perspectives

Generally, students in private and state universities believed that higher education prices in Nigeria were high. In private universities, as high as 70 percent of respondents believed prices for higher education were high. Correspondingly, 64 percent of students in state universities believed higher education prices were high. However, only 38 percent of students in federal universities believed higher education prices were high. Yet on average, more than 62 percent of students believed that fees were not subsidised.

Indeed, 55 percent of respondent students in federal universities believed so. This increased to 68 percent in state and 74 percent in private universities respectively.

The views of students about prices and subsidies seem justified because in general, only a few of them saw the application of formal elements of subsidies like scholarships, bursaries and other financial aids in pricing higher education in Nigeria. For example, only 39 percent of them believed that bursaries were in operation in Nigeria while 17 percent of them perceived scholarship as being in operation and only 11 percent of them thought that other student financial aids were used in funding higher education in Nigeria. Generally, respondent students believed that if subsidies existed in Nigerian education at all, the level was very low. On average, about 51 percent of respondent students believed that subsidies were less than ₦ 10,000 per student per year. This view varied by type of university ownership. Among state universities for example, as many as 59 percent believed that subsidies were less than ₦ 10,000 per student per year. The corresponding proportion among federal university respondents was 52 percent and among private university respondents, it was 24 percent.

The views of students seem to agree with the earlier analysis of this study that the quantum of subsidies in higher education seems not to be enough in minimizing prices and hence improve access to higher education in Nigeria because the common elements of subsidies like scholarships, bursaries and other student financial aids are no longer in operation.

Price elasticities with respect to production cost and subsidy

In general, for all the sampled universities, the elasticity of price with respect to production cost was 0.82 which shows that price was moderately elastic (close to unit elasticity) with respect to production cost. Interestingly, the federal and private universities were price inelastic with respect to production cost with the federal universities having the smaller coefficient of elasticity (elasticity = 0.13 for federal universities compared to 0.96 in private universities). The state universities were price elastic with respect to production cost (elasticity = 1.48). This means that higher

education prices in all the sampled universities were responsive to changes in production cost. It further shows that higher education prices in all the universities increased with production cost since prices were positively related to production cost. Because of this finding, it will be good to get a policy variable that can decrease higher education prices and which is elastic at the same time.

With respect to subsidy, all sampled universities were price inelastic (elasticity = -0.36). Federal, state and private universities were also respectively price inelastic with respect to subsidy. However, while price elasticity with respect to subsidy in federal universities was 0.49, the corresponding value for state universities was -0.81 and for private universities it was -0.18. It is not surprising that price elasticity with respect to subsidy in private universities was the least among the three. Previous findings in this study pointed in that direction with respect to magnitude of subsidy and student perception of subsidy in higher education. It is noted however that the price elasticity with respect to subsidy in the federal universities was positive rather than negative which is contrary to theoretical expectation.

Access

The findings on price elasticities with respect to production cost and subsidy also suggest that currently, the subsidy element in production cost in Nigerian higher education was not significant enough to reduce prices and improve access to higher education. This is in agreement with previous findings that Nigeria needs to improve on the different types of subsidy elements to make a difference in pricing of higher education in Nigeria. Thus, the quantum of scholarships, bursaries and other student financial aids needs to increase significantly so that higher education can be more price elastic with respect to subsidy and hence lead to increasing access to higher education.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter presents a summary of the study, conclusion and recommendations.

5.1 Summary

The issue of who pays for education especially at the university level has been a politically sensitive issue in Nigeria. In the face of inadequate funding of university education in Nigeria and increasing production costs coupled with increasing demand for university places, students pay incomparable prices. The study investigated the production costs, levels of subsidies and the appropriate pricing for university education in Nigeria. Specifically, the study investigated the relative share of funding of university education through subsidies from government and private sector in Nigeria; the impact of subsidy flows on price charged in Nigerian universities; and the relationship between the cost of providing university education and the price charged for the same in Nigeria.

The study adopted a survey research design of the *ex-post facto* type with one dependent variable (price) and three independent variables (production cost, subsidy, proprietorship). The study population comprised all the universities in Nigeria, which were categorised into three, depending on their proprietors. The three groups were federal, state and private. Twenty universities (10 federal, 7 state and 3 private) were purposively selected for the study while 2000 students were selected through a stratified random sampling method. Of the 2000 students, 1000 were from the federal universities while 700 and 300 were from the state and private universities respectively. Two research instruments were developed to collect data from the various respondents and the data collected were analysed using descriptive and inferential statistics.

From the study, it was found that production cost and subsidy were highly and positively correlated with price. However, price was found to be only moderately responsive to production cost and just fairly responsive to subsidy. Price elasticity with respect to production cost was found to be highest in the state universities while the least price elasticity with respect to subsidy was found in the private universities. Production costs in the federal universities contrasted sharply with those of state and private universities. The average production cost in the federal universities was more than double that of state and about half that of private universities. There were significant variations in production cost among the universities. Variability was high. The state universities were the most consistent while the highest variability was found in the private universities. There was significant difference in subsidy between federal and state and between public and private universities. Subsidy was highest in the federal universities depicting more than three times that of state and about three times that of private universities. In the initial years, subsidy was high in the private universities but this has started to decline. Students had a wrong perspective of the subsidy provided by the universities as the average subsidy according to the students was about half of what was computed for the universities. Surprisingly, the average prices in the federal and state universities were about the same but the private universities charged about 16 times what obtained in the federal universities. Generally, students perceived fees as high especially in the private universities.

5.2 Conclusion

Wide and significant differences in production costs were found to exist between federal and state universities as well as between state and private universities. The highest mean production cost and price levels were found in the private universities while subsidies were found to be in the ratio 57:45:10 in federal, state and private universities respectively. The relatively high costs and prices in the private universities might not be unconnected with the high initial capital outlay required for the establishment of a university as well as the low student enrolment figures. Fees in the private universities

are high and out of reach of many students as the students considered the fees paid as high.

Higher education prices were moderately responsive to changes in production cost. The findings with respect to subsidy suggest that the magnitude of subsidy was not significant enough to reduce price and improve access although subsidy was found to be negatively related to price.

5.3 Recommendations

The quantum of scholarships, bursaries and other student financial aids needs to increase significantly so that higher education can be price elastic with respect to subsidy and hence lead to increasing access to higher education. Increasing the quantum of subsidies employed will result in price reduction and consequently increase student enrolment. If the United States of America, the champion of education free market, could spend as much as \$30 billion a year on subsidies on higher education, there is need for Nigeria to increase the quantum of subsidies to its higher education system.

To bring down the average production cost, there is need to reduce possible areas of wastages especially in the federal universities. The fact that the state universities could operate at an average production cost which was less than half of that of the federal universities suggests possible areas of wastages in the federal universities since the quality of the products of the state universities has not been questioned. Institutions of higher education should be provided with incentives to pursue innovations that might cut costs.

Government should find a politically correct way to reintroduce tuition in the federal universities so as to minimise the effect of under-funding the system. This will capture revenues from some able students in the present system who currently are not paying. Besides the few scholarships awarded now are not effectively utilised because the federal

university system is tuition-free. Indigent students would be assisted through scholarships, bursaries, student loans and other financial aids.

Aggressive publicity by Governments and proprietors of private universities should be embarked upon to make students aware of the fact their fees were being subsidised although at various degrees. This would minimize, if not eliminate, possible student unrests that usually accompany any fee rise.

Federal, State and Local Governments should be involved more than ever before in the sponsorship of students. The percentage of students sponsored by Governments is currently too low and should be increased considerably. This could be done through the allocation of more funds to the education sector as a matter of priority.

A student-work programme should be mounted by each University to enable a reasonable percentage of indigent students earn some income while pursuing their degree programmes in the University. Such students could be engaged on casual bases and paid according to work done.

There is a need to assist students in private universities once the universities are approved by Government. This will enable the students to pay their fees and the universities to enrol more students. As at now the enrolment levels in the private universities do not allow for economies of scale to come into play; and private universities account for less than 15 percent of the average student enrolment in a federal or state university.

The National Universities Commission should resuscitate the publication of vital information on the Nigerian universities. Such publications include the Annual Digest and the Annual Report from where researchers and the public could easily obtain data that were not readily released to the public by the universities.

5.4 Contributions to knowledge

The study is an investigative contribution applying received theory to solve practical problems of university education financing in Nigeria to aid policy decisions. The study has been able to ascertain the levels of production cost, subsidy and prices in the federal, state and private universities in Nigeria thereby enabling a comparison to be made among the three categories. It was found that wide variations exist among the three categories. Price has been found to be responsive to changes in average production cost and subsidy. The study found that higher education prices respond to changes in production cost more than it does to subsidy. This is in line with the general theory that prices should reflect cost of production. The level of subsidy in the private universities is on the decrease. Generally, the level of subsidy was not significant enough to reduce price and improve access to higher education overall in the country. The study also revealed the perspectives of students on these issues. Many students did realise the extent to which their fees were subsidised. The study developed a framework to explain the relationships among production cost, level of subsidy and pricing in Nigerian universities.

5.5 Limitations to the study

The size of the sample especially the number of private universities was small. Secondly, some of the universities were reluctant in releasing data on their finances. The study did not cover private costs such as the earnings the students were foregoing during the period of education and non-tuition costs (transportation, books and stationery items, feeding and accommodation). No distinction was made between the cost incurred by a university and its proprietor. Certain data on Nigerian universities routinely kept by the National Universities Commission in the past were not available.

Estimates of average total cost per student were used in this study because of difficulties in separating the production costs of undergraduate and postgraduate students. These difficulties arose as a result of situations where the same lecturer teaches both

undergraduate and postgraduate students. The issue of how to distribute the personnel costs of such lecturers between undergraduate and postgraduate students was a problem.

5.6 Suggestions for further studies

Only very few private universities were ripe for the study and information on them were scanty. With a total of 50 private universities now in the country, it is suggested that the situation in the private universities be further investigated. The period covered by the study could also be extended to capture the current conditions.

The average production cost in the state universities was found to be less than half the value found in the federal universities. The quality consequences of this finding need to be further investigated. It is possible that quality is compromised for low price. This needs to be empirically established.

The issue of access to private universities should be further investigated as it appeared only children/wards of the rich are currently benefiting.

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Appendix One: Total applications and admissions 1978-2008

Academic Year	Total Applications	Total Admissions	Percentage Admitted	Percentage Not Admitted
1978/79	114,801	14,417	12.6	87.4
1979/80	144,939	28,213	19.3	80.7
1980/81	180,673	26,808	14.8	85.2
1981/82	205,112	29,800	14.5	85.5
1982/83	191,583	27,373	14.3	85.7
1984/85	201,140	27,482	13.7	86.3
1985/86	212,114	30,996	14.6	85.4
1986/87	193,774	39,915	20.6	79.4
1987/88	210,525	36,456	17.3	82.7
1988/89	190,353	41,700	21.9	78.1
1989/90	255,638	38,431	15.0	85.0
1990/91	287,572	48,504	16.9	83.1
1991/92	398,270	61,479	15.4	84.6
1992/93	357,950	57,685	16.1	83.9
1993/94	420,681	64,783	16.0	84.0
1995/96	512,797	37,498	7.3	92.7
1996/97	475,923	79,904	16.8	83.2
1997/98	419,807	72,791	17.3	82.7
1998/99	340,117	78,550	23.1	76.9
1999/00	417,773	78,550	18.8	81.2
2000/01	416,381	45,766	11.0	89.0
2001/02	749,417	90,769	12.1	87.9
2002/03	994,381	51,845	5.2	94.8
2003/04	1,046,103	104,991	10.0	90.0
2004/05	841,878	122,492	14.6	85.4
2005/06	916,371	76,984	8.4	91.6
2006/07	803,472	88,524	11.0	89.0
2007/08	911,653	107,320	11.8	88.2

Source: Moti, 2010

Appendix Two: Budgetary allocation to education sector (1999 – 2008)

Year	Amount (in billion Naira)	Percentage
1999	23.047	11.2
2000	44.225	8.3
2001	39.885	7.0
2002	100.2	5.09
2003	64.76	11.83
2004	72.22	7.8
2005	92.59	8.3
2006	166.6	8.7
2007	137.48	6.07
2008	210	13.0

Source: Ministry of Education Budget Office/Olugbile, 2008.

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Appendix Three: Public expenditure as a percentage of gross domestic product,

2004

Region/World	Percentage
Middle East and North Africa	4.9
Sub-Saharan Africa	4.5
Latin America and Caribbean	4.4
South and West Asia	3.6
East Asia and Pacific	2.8
World	4.3

Source: UNESCO Global Education Digest 2007

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Appendix Four: Unit cost in U.S. Dollars of secondary, technical, and tertiary education in selected African countries

Country	Upper Secondary	Technical/Vocational	Tertiary	Ratio Technical: Secondary (4)/(2)	Ratio Tertiary: Secondary (5)/(2)
1	2	3	4	5	6
Benin	278	386	612	1.4	2.2
Burkina Faso	291	NA	1,364	NA	4.7
Cameroon	354	583	484	1.6	1.4
Chad	157	896	926	5.7	5.9
Cote d'Ivoire	617	951	978	1.5	1.6
Ethiopia	59	355	636	6.0	10.8
Ghana	165	340	900	2.1	5.5
Madagascar	141	183	491	1.3	3.5
Mali	265	NA	481	NA	1.8
Mauritania	139	771	538	5.5	3.9
Mozambique	145	180	1,535	1.2	10.6
Niger	309	NA	968	NA	3.1
Nigeria	162	433	1,260	2.7	7.8
Senegal	460	624	1,513	1.4	3.3
Togo	118	362	332	3.1	2.8
Zambia	97	NA	567	NA	5.8

Sources: Derived from World Bank Ed Stats, Pole de Dakar, Johanson and Adams 2004; World Bank 2009, p.77

Appendix Five: Letter to Vice-Chancellors of selected universities

27th March 2008

The Vice-Chancellor,

Dear Sir,

**REQUEST FOR INFORMATION ON NIGERIAN UNIVERSITY EXPENDITURE,
REVENUE AND STUDENT ENROLMENT**

I am pursuing a PhD programme in the Department of Educational Management, University of Ibadan. I am interested in investigating the levels of subsidies enjoyed by students in Nigerian Universities. I should be grateful if you could approve the release of the information contained in the attached questionnaire (NUERSEQ) from the Registrar/Bursar/Director of Academic Planning/Director of Works. I quite appreciate that part of the information requested is sensitive and I promise that such information will be held in strict confidence and used solely for research purposes.

Thank you sir.

(signed)
O. Osasona.

Appendix Six: Letter to Directors of Academic Planning of selected universities

PRODUCTION COSTS, LEVELS OF SUBSIDIES AND PRICING IN NIGERIAN UNIVERSITIES

Dear Colleague,

You are being contacted on the basis of your track record and you are therefore one of the major resource persons at this stage of the above-named study. Using certain criteria, your University is one of the twenty (20) Federal/State/Private Universities selected for the study.

Your assistance will no doubt go a long way in ensuring that the study achieves the objectives for which it was designed. You are kindly requested to help facilitate the administration and completion of the accompanying questionnaires within your University. Please go through the instructions below. You would have done me a good favour by complying with them.

Field Data: Two sets of questionnaire have been developed for the study

- Nigerian Universities Expenditure Revenue and Student Enrolment Questionnaire (NUERSEQ)
- Students Questionnaire on Pricing and Subsidy (SQPS).

The respondent for NUERSEQ will be the Director of Academic Planning or equivalent in the selected universities, having obtained the necessary data from the Bursar, Registrar and Director of Works. Only a copy of this questionnaire should be completed by the University.

One hundred (100) copies of SQPS are forwarded to your University. The instrument is meant for the current students of the University. Its sample frame should cover all levels of study, both male and female students, and all available faculties/institutes. Kindly ensure that a student completes only one questionnaire to guide against spurious data.

Thank you very much for your anticipated cooperation.

Olagbemi Osasona
Director of Planning
University of Ibadan.

Appendix Seven: Student questionnaire

**DEPARTMENT OF EDUCATIONAL MANAGEMENT
UNIVERSITY OF IBADAN, IBADAN**

STUDENT QUESTIONNAIRE ON PRICING AND SUBSIDY (SQPS)

I am a research student in the Department of Educational Management, University of Ibadan. I am interested in investigating the levels of subsidies enjoyed by students in Nigerian Universities. I therefore solicit your assistance in supplying the under-listed items of information. All information collected through this questionnaire will be held in strict confidence and used solely for research purposes.

Thank you.

O. Osasona.

1. **Name of University:** _____

2. **Department:** _____

3. **Course of Study:** _____

4. **Level of Study:**

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
100 Level	200 Level	300 Level	400 Level	500 Level	600 Level

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PG Diploma/Cert	Professional Masters	Academic Masters	PhD

5. **Age:**

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15-19 Years	20-24 Years	25-29 Years	30-34 Years	35-39 Years	40&Above

6. **Gender:** Female Male

7. **Who is your sponsor?**

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Parent/Guardian	Government	NGO	Religious Body	Self

8. If parent or guardian, what is his/her occupation?

Public/Civil Servant
 Self Employed
 Politician

 Others (Specify)

9. Income of sponsor per annum:

₦ 2,000,000 & above
 ₦ 1,500,000 to ₦ 1,999,999
 ₦ 1,000,000 to ₦ 1,499,999
 ₦ 500,000 to ₦ 999,999
 ₦ 10,000 to ₦ 499,999

10. Amount received from sponsor as fees per annum:

₦ 200,000 & above
 ₦ 150,000 to ₦ 199,999
 ₦ 100,000 to ₦ 149,999
 ₦ 50,000 to ₦ 99,999
 ₦ 10,000 to ₦ 49,999

11. Indicate the total amount you paid to the university for the following items:

Year	2000	2001	2002	2003	2004	2005	2006
	₦	₦	₦	₦	₦	₦	₦
Tuition							
Accommodation							
Feeding							
Other Levies							

12. How do you classify the total amount paid as fees in your university?

High
 Adequate
 Low

13. What do you consider as the right total amount to be paid by a student offering your course?

₦ -----

14. Do you think your fee is being subsidised by the government/proprietor of the university?

Yes
 No

15. If yes, in which way is the government/proprietor subsidizing?

Tuition free

Bursary

Scholarship

Students
Financial Aid

Others (Specify) _____

16. How much is the total subsidy you receive per annum?

Less than ₦ 10,000

₦ 10,000
to
₦ 50,000

₦ 50,001
to
₦ 100,000

₦ 100,001
to
₦ 150,000

₦ 150,001
to
₦ 200,000

₦ 200,001
and
above

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Appendix Eight: University questionnaire
UNIVERSITY OF IBADAN
DEPARTMENT OF EDUCATIONAL MANAGEMENT

Dear Sir/Madam

**NIGERIAN UNIVERSITY EXPENDITURE, REVENUE AND STUDENT
ENROLMENT QUESTIONNAIRE (NUERSEQ)**

I am a research student in the Department of Educational Management, University of Ibadan. I am interested in investigating the levels of subsidies enjoyed by students in Nigerian Universities. I therefore solicit your assistance in supplying the under-listed items of information. All information collected through this questionnaire will be held in strict confidence and used solely for statistical purposes.

Thank you.

O. Osasona.

A. General Information

1. Name of University
2. Location:
3. Year Founded
- 4 Proprietor (i) Federal Government (iii) Religious Group
- (ii) State Government (iv) Others
5. Type of University (i) Conventional University (iii) University of Technology
- (ii) University of Agriculture (iv) Others (Specify)
6. Major Sources of Revenue (i) Government (iv) Community Participation
- (ii) Religious Group (v) International Agency
- (iii) Student Fees (vi) Others (Specify)

B. Revenue from Students

Please state total amounts in Naira realized from the following student sources in the years indicated:

	2000	2001	2002	2003	2004	2005	2006
Tuition & Examination							
Accommodation							
Feeding							
Development fees							
Other fees/levies							

C. Other Sources of Revenue

Please state total amounts in Naira realized from the following sources in the years indicated:

	2000	2001	2002	2003	2004	2005	2006
Proprietor							
Gifts & Endowments							
Investment Income							
Others							

D. Expenditure

Please state the total amounts in Naira expended on the following items in the years indicated:

	2000	2001	2002	2003	2004	2005	2006
Recurrent Expenditure							
Building Construction & Infrastructure							
Equipment & Vehicles							
Library Books & Journals							
Others							

E. Student Population

Please state the total student population according to the levels of studies in the years indicated:

	2000	2001	2002	2003	2004	2005	2006
Sub-degree							
Undergraduates							
Postgraduates							
Number of students accommodated by the University in Halls of Residence							

Appendix Nine: List of approved universities in Nigeria as at July 2011

UNIVERSITIES								
S/N	Federal	Year	S/N	State	Year	S/N	Private	Year
1	University of Ibadan, Ibadan	1948	1	Rivers State University of Science & Technology, Port-Harcourt	1979	1	Babcock University, Ilishan Remo	1999
2	University of Nigeria, Nsukka	1960	2	Ambrose Alli University, Ekpoma	1980	2	Madonna University, Okija	1999
3	Obafemi Awolowo University, Ile-Ife	1962	3	Abia State University, Uturu	1981	3	Igbinedion University, Okada	1999
4	Ahmadu Bello University, Zaria	1962	4	Enugu State University of Science & Tech, Enugu	1982	4	Bowen University, Iwo	2001
5	University of Lagos, Lagos	1962	5	Olabisi Onabanjo University, Ago-Iwoye	1982	5	Covenant University, Ota	2002
6	University of Benin, Benin City	1970	6	Lagos State University, Ojo, Lagos	1983	6	Pan-African University, Lagos	2002
7	Bayero University, Kano	1975	7	University of Ado-Ekiti, Ado-Ekiti	1982	7	Benson Idahosa University, Benin City	2002
8	University of Calabar, Calabar	1975	8	Ladoke Akintola University of Technology, Ogbomoso	1990	8	ABTI-American University, Yola	2003
9	University of Ilorin, Ilorin	1975	9	Evan Enwerem University, Owerri	1992	9	Redeemers University, Mowe, Ogun State	2005
10	University of Jos, Jos	1975	10	Benue State University, Makurdi	1992	10	Ajayi Crowther University, Oyo	2005
11	University of Maiduguri, Maiduguri	1975	11	Delta State University, Abraka	1992	11	Al-Hikmah University, Ilorin	2005
12	Usman Danfodiyo University, Sokoto	1975	12	Adekunle Ajasin University, Akungba-Akoko	1999	12	Caritas University, Amorji-Nke, Enugu	2005
13	University of Port-Harcourt, Port-Harcourt	1975	13	Kogi State University, Anyigba	1999	13	CETEP City University, Lagos	2005
14	Federal University of Technology, Owerri	1980	14	Niger-Delta University, Yenagoa	2000	14	Bingham University, Auta Balefi, Karu, Nasarawa State	2005
15	Federal University of Technology, Akure	1981	15	Anambra State University of Science & Technology, Uli	2000	15	Katsina University, Katsina	2005
16	Federal University of Technology, Yola	1981	16	Kano State University of Technology, Wudil	2000	16	Renaissance University, Enugu	2005
17	Federal University of Technology, Minna	1982	17	Ebonyi State University, Abakaliki	2000	17	Bells University of Technology, Ota, Ogun State	2005

UNIVERSITIES								
S/N	Federal	Year	S/N	State	Year	S/N	Private	Year
18	Nigerian Defence Academy, Kaduna	1985	18	Nasarawa State University, Keffi	2002	18	Lead City University of Ibadan, Oyo State	2005
19	University of Abuja,	1988	19	Adamawa State University, Mubi	2002	19	Crawford University, Igbesa, Ogun State	2005
20	Abubakar Tafawa Balewa University, Bauchi	1988	20	Gombe State University, Gombe	2004	20	Wukari Jubilee University, Wukari	2005
21	University of Agriculture, Makurdi	1988	21	Kaduna State University, Kaduna	2004	21	Crescent University, Abeokuta	2005
22	University of Agriculture, Abeokuta	1988	22	Cross River University of Technology, Calabar	2004	22	Novena University, Ogume, Delta State	2005
23	Nnamdi Azikiwe University, Awka	1992	23	Plateau State University, Bokkos	2005	23	University of Mkar, Mkar	2005
24	University of Uyo, Uyo	1991	24	Ondo State University of Technology, Okitipupa	2008	24	Joseph Ayo Babalola University, Ikeji-Arakeji Osun State	2006
25	Michael Okpara University of Agriculture, Umudike	1992	25	Ibrahim Babangida University, Lapai, Niger State	2005	25	Caleb University, Lagos	2007
26	National Open University of Nigeria, Lagos	2002	26	Tai Solarin University of Education, Ijagun	2005	26	Fountain University, Oshogbo	2007
27	Fed. Univ. of Petroleum Resources, Effurun	2007	27	Umaru Musa Yar'Adua University, Katsina	2006	27	Obong University, Obong Ntak	2007
28	Federal University, Lokoja, Kogi State	2011	28	Bukar Abba Ibrahim University, Damaturu Yobe State	2006	28	Salem University, Lokoja	2007
29	Federal University, Lafia, Nasarawa State	2011	29	Kebbi State University of Science and Technology, Aliero	2006	29	Tansian University, Umunya, Anambra State	2007
30	Federal University, Kashere, Gombe State	2011	30	Osun State University, Osogbo	2006	30	Veritas University, Abuja	2007
31	Federal University, Wukari, Taraba State	2011	31	Taraba State University, Jalingo	2008	31	Wesley Univ. of Science & Tech., Ondo	2007
32	Federal University, Dutsin-Ma, Katsina State	2011	32	Kwara State University, Ilorin	2009	32	Western Delta Univ., Oghara, Delta State	2007
33	Federal University, Dutse, Jigawa State	2011	33	Sokoto State University, Sokoto	2009	33	The Achievers University, Owo	2007

UNIVERSITIES								
S/N	Federal	Year	S/N	State	Year	S/N	Private	Year
34	Federal University, Ndufu-Alike, Ebonyi State	2011	34	Akwa Ibom State University, Ikot Ikpaden	2010	34	African Univ. of Science & Tech., Abuja	2007
35	Federal University, Oye-Ekiti, Ekiti State	2011	35	Rivers State university of Education, Rumuolumeni	2010	35	Afe Babalola University, Ado-Ekiti, Ekiti State	2009
36	Federal University, Otuoke, Bayelsa State	2011	36	University of Science and Technology, Ifaki-Ekiti, Ekiti State	2010	36	Godfrey Okoye University, Ugwuomu-Nike, Enugu State	2009
						37	Nigerian Turkish Nile, University, Abuja	2009
						38	Oduduwa University, Ipetumodu, Osun State	2009
						39	Paul University, Awka, Anambra State	2009
						40	Rhema University, Obeama-Asa, Rivers State	2009
						41	Wellspring University, Evbuobanosa, Edo State	2009
						42	Adeleke University, Ede, Osun State	2011
						43	Baze University, Abuja	2011
						44	Landmark University, Omu-Aran, Kwara State	2011
						45	Samuel Adegboyega University, Ogwa, Edo State	2011

Source: National Universities Commission *Monday Bulletin* Vol. 6 No. 27 of 4th July 2011

Appendix Ten: Total Production Costs in Selected Nigerian Universities

Year	Federal ₦	State ₦	Private ₦
2000	2,239,615,351	412,077,502	64,777,621
2001	1,538,602,713	643,284,272	343,110,396
2002	1,833,993,888	780,262,339	345,314,870
2003	1,974,249,681	657,215,938	785,894,499
2004	2,131,233,680	1,011,997,658	829,263,477
2005	2,307,702,030	1,234,476,245	965,775,465
2006	3,807,575,121	1,448,508,351	1,124,599,115

Source: Author's Fieldwork, 2008

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Appendix Eleven: Average Student Enrolment in Selected Nigerian Universities

Year	Federal	State	Private
2000	13577	15939	645
2001	17136	18336	1025
2002	22473	16958	1066
2003	20253	24545	3213
2004	19176	20134	3505
2005	18952	21306	3702
2006	22502	18338	4671

Source: Author's Fieldwork, 2008

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