CONSTRUCTION AND USE OF CONSTRUCTION COST INDICES

(A case study of A.B.U. Project)

BY

Abba Bello Ingawa

B.Sc (Hons) QS, PGDM

Supervised By

Mr. S.J. Sikora
Senior Lecturer
Department of Building ABU Zaria

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DEPARTMENT OF BUILDING

We certify that we have read this thesis and in our opinion it confirms to accepatable standards of scholarly presentation and is fully adequate in scope and quality, as a thesis for the degree of Master of Science in Construction Management.

Mr. S. J. Sikora
SUPERVISOR

Mr. Larry
CO-SUPERVISOR

EXTERNAL EXAMINER

This thesis was submitted to the Faculty of Environmental Design th Postgraduate School and the Senate of Ahmadu Bello University and was accepted as partial fulfilment of the requirements for the degree of Master of Science in Construction - Management in the Department of Building.

Dean of Postgraduate School

Head of Building Department

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D E D I C A T I O N

Robs life of sorrow

and Man of depression

at Prime, provides shelter

within the heart of another;

This is for you, BINTA.

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CHAPTER 1

1.00 GENERAL INTRODUCTION

1.10 Background of the work

Nigeria's construction industry has received in the past and still receives a great deal of criticisms in regard to the country's present economic crisis. This, however, is mainly due to the fact that, public office holders do use the contruction industry in one way or the other, to syphon a lot of money out of the country, through the use of certain standard procedures for budgetting and reimbursing contractors for unforeseen eventualities. These procedures are poorly controlled by their operators.

It is the intention of this study to experiment with Ahmadu Bello University Zaira Projects, the possibilities of developing control systems, such as tender indices and materials/labour price indices for use in both budgetting and formula adjustments for variations in prices (fluctuations), so that inflation of contracts through the standard procedure is effectively controlled by use of the intended control systems (indices).

The effectiveness of these control systems will greatly depend on the acceptability of the indices to the construction industry and the society at large. No matter how carefully developed are the indices, their effective use will be a direct measure of their acceptability. In other words, the development of the indices alone, without a sound background for their acceptance by the concerned Professional members of the construction industry and their clients, will result into a futile venture as effective implementation will be made practically impossible.

With the concentration on A.B.U. Projects in this piece of work, a possible acceptance of such indices by this institution, may result into an encouraged effort towards the development of a nationwide set of indices as well as a ground for the national acceptance of the highly desired control system (indices).

1.20 Purpose of the work

The main objectives of this work are as follows:

i. To develope tender based indices for A.B.U. projects so that future forecasting and budgetting are made easier.

ii. To develop materials and Labour Price Indices for use in the formula method for fluctuation Adjustments.

1.30 Scope of the works

This exercise has a wide range of coverage, especially in a country like Nigeria where randomn market pricing has become the order of the day, within the construction sector of the economy. A development of certain set of indices will definitely help in the control of this pricing attitude that leades to unnecessarily high construction costs.

While there are quite a number of indices that could be developed, depending on the purpose, this piece of work will be mainly concerned with tender based indices for forecasting and budgetting purposes and material/labour price indices for use in the formula method for fluctuation Adjustments. Despite the fact that labour wages are fairly constant and definite in the country, a careful study of the resource constants of various work categories that include labour will result into a fairly well constructed index.

1.40 Limitations

Development of indices is a statistical phenomenom that requires the study (analysis) of a large sample of Projects (say 80 Projects), but due to time constraints this work is limited to the analysis of a few A.B.U. projects, through the use of average rates obtained from a large sample of projects.

The projects to which this work is limited are as follows:

i. Faculty of Human Medicine 1974

ii. Sports Complex 1975

iii. University Bookshop 1976

iv. Kitchen Laundary & Gen. Wards 1977

v. Agronomy Building 1979

These are all reinforced concrete framed strutures that will provide a common basis for comparison.

The work however involves the pricing of the above listed projects at selected intervals (Years) from 1974 to 1984. Also a collection and collation of key materials basic Prices submitted within the same period at similar intervals. The analysis, however, involves the development of tender based indices and materials/labour Price Indices details of which will be discussed in later sections of this work.

1.50 Nature and order of Persentation:

The work has been divided into four chapters:-

Chapter 1 - GENERAL INTRODUCTION Introduces the work generally by giving its background, need, purpose, scope and limitations. This simply tries to show the purpose of the work and to whom such a development is relevant.

Chapter 11 - LITERATURE REVIEW

This section of the work attempts at giving a theoritical background of indices development and use. Different types of indices that could be developed and a comparative study of their effectiveness in use.

Chapter III - DATA COLLECTION ANALYSIS

This could be said to be the core section of this work, as it deals with the methods of collection of data, subsequent analysis of the same and a final development of the desired indices.

Chapter iv - CONCLUSION AND RECOMENDATIONS

This chapter however, strictly deals with the result attained from the developed indices, with possible solutions to the problems encountered in the development and maintenance of this set of indices.

CHAPTER II

2.00 LITERATURE REVIEW

2.10 Indices Generally

2.11 Definition

Peter Brandon[17] referred to a Cost Index as an item of cost data, relating to forecasting techniques which rely on historical information and measures changes in the cost of an item or group of items, from one point in time to another.

Ealier Definitions have shown the main function of building cost indices to be that of assessing the difference in levels of tenders at varying dates.

But this has been widened by the various types of indices developed for many different uses. These uses are carefully discussed in the following section.

2.1.2 Uses of Cost Indices

i. Updating elemental cost analyses:- This is widely used by Quantity Surveyors in the cost planning process. Tender submissions for past projects could be updated and adjusted for budgetting purposes of similar projects. Care should be taken in the use of this index for forecasts, as trends over a period of two years tend to be very difficult to predict.

ii. Updating for research: In carrying out research works, that in most cases involve statistical analyses requiring a large sample of data, it is usually difficult to obtain such sample size of data for a particular point in time. Therefore the use of cost indices to update such data from other times helps in acquiring the desired sample size for the research work intended.

iii. Extrapolation of existing trends: Costs could be measured by an index through a period of time and plotted, so that a pattern that may possibly be extrapolated into the future is produced. However, care should be taken to ensure that such extrapolations are not made for a period of more than one or two years, in order to avoid getting caught up by sudden unforeseen escalations.

iv. Calculation of price fluctuation: With more and more researches into the problems of fluctuations under the building contract, trade indices have been developed in some parts of the world (U.K.) that are updated monthly and used to calculate the level of fluctuations in building contracts, hence avoiding first, the rigourous and time consuming traditional methods and also effectively controlling the finance in a fluctuating construction contract. This development, the formula method for fluctuations Adjustments, will be discussed in detail in later sections of this work.

v. Identification of changes in Cost Relationship: This is the case, where an index is used in making a comparative analyses of design alternatives through a period of time. An index is produced for each of the alternatives in question (Say Steel Vs Concrete) and the pattern of change analysed against one another, so that a cheaper alternative at a point in time is arrived at.

vi. Assessing Market Conditions: It is definitely clear that, the most important aspect of Budgetting is for the client to know initially, how much he is to spend for the desired project. This, gives rise to the need for a careful assessment of market prices, against the cost of resources, so that an effective forecast is always made, in times of Budgetting.

2.1.3 Types and Construction of Cost Indices

Different methods of construting cost indices employed over a period of 20 years, greatly determine the nature or type of cost index produced for a particular use. Out of the indices developed, the factor cost and tender based indices are the most widely used for short term forecasting, fluctuation allowances and long term forecasting & budgetting purposes today. The following are some of the types and methods of construction of cost indices that have so far been developed:

i. Indices based on analysis of Unit Price for buildings of similar functions: This method is centrally based on the available data of a particular building type, for example, if the cost per square meter of floor area of all schools built in certain area at a point in time could be attained, then the average cost will provide a base for an index,
developed by comparing the base average cost with average costs at certain intervals of time. This form of index, as Brandon[17] pointed out, could only be applicable to buildings with homogeneous nature, in both function and standard and for which there is a regular building programme to provide the data.

ii. Based on the use of a Notional Bill: In this method a typical Bill of Quantities is repriced at regular intervals by a competent Quantity Surveyor, based on his experience on current prices. However, the trend of change could hardly be assessed such that a reliable order is obtained from the extended totals of the Quantity Surveyor's pricing.

This method, if still in use, must be phased out immediately due to the high degree of uncertainty it carries.

iii. Indices Based on semi intuitive Assessment: This is based on the trends in resource costs, combined with tender reports by quantity surveyors. With the analysis and reports of tenders received from different projects, experienced Quantity Surveyor can adjust his knowledge of the change in labour and materials costs and develop an index for the current market situation. This works very well in market conditions that are fairly stable or steadily changing, but tends to be almost impossible to use when the market condition has no steady pattern.

iv. Tender Based Index: This type of index, to quote DOUGLAS FERRY AND P. BRANDON[17], is usually constructed by repricing the measured items in the currently submitted tender Bills of Quantities, using a standard schedule of base year prices to give a base year tender, or what the tender would have been at the base year. Then an index can be constructed by comparing the current tender figure with the new derived base year total. This method will be discussed in detail in later sections of this work.

v. Factor Cost Indices: This is an index development that considers the cost resources (Plant, material & labour) of a building. The weighted cost of each resource constant is calculated and an average index is got by comparing with similar costs at the base year. Details of this method of construction of indices will be considered later in this chapter.

2.1.4 Problems associated with construction and use of Cost Indices

Like most other statistical exercises, the construction of cost indices has many associated problems, that in most cases, give rise to difficulties in the use of the indices produced. Some of these problems are enumerated below:

i. The index usually measures the trend for typical building type and may not be measuring the change over time for the particular building (Project) you are developing.

ii Where the base date is many years old, the question of whether one is using the appropriate basis of index construction arises, whther the data used is outdated or not. This is so because the resource mix may differ through time, due to further developments in both construction technology and design. This means there is a need for constantly updating the weightings for the base year. Also in the short-run, the resource 'mix' on a typical building may affect the result of the very changes in cost, the index is used to measure. However, as new techniques and materials come into greater use, then price tends to decrease proportionately, while the cost of obsolete technology rises faster than the normal rate of increase. To identify trends therefore, every index must carry along some economic history behind it.

viii. In plotting the trend of an index, a logarithmic approach usually eliminates further difficulties, i.e. logarithmic set of values of the index against the natural scale for time. This method gives the advantage of obtaining a straightline that makes extrapolation a lot easier than in the second method where natural scales are used. This usually ends up in a curve, on which extrapolation and comparison are difficult.

With the straight line relationship got from the use of the logarithmic method, any change above or below this line will show immediately as a change in its regular pattern and therefore helps in detecting new trends.

However, in the use of indices to forecast future market trends, there are certain difficulties that arise due to human inability to forecast the unforseen. On the part of the Quantity Surveyor whose main aim is to tell his client what market price he will have to pay for his future developments, care should be taken by disclosing all methods, asssumptions and indices used, to ensure that he is not accorded the blames in case of the unforeseen.

2.15 Choice of appropriate Index

It is glaringly clear that, the effectiveness of an index will very much depend on the appropriateness of the same index to the intended project. It is therefore necessary to ensure that an appropriate index is chosen for whatever purpose the user intends. In summary, the choice of index will be determined by the use to which the index is put e.g.

i. for short-term forecasting, Adjustments for fluctuations the factor cost index is most appropriate.

ii. For longterm forecasting and budgetting purposes, the unit price index based on cost per square metre or unit accommodation could be used.

iii. for cost planning purposes and general estimating, the tender based index will be most appropriate as it will most reliably give the client the most likely change in cost. Where a national averaging system is available, this method could also be used to measure the performance of a tender, region or building type against the national average.

2.2.0 Factor Cost index

This type of index takes into consideration the cost of the resources (plant, materials, labour) used in the execution of an item or category of work. The base year costs are compared with the current year costs and an index is developed as in the illustration below.

Consider the cost of one m^2 of 230mm wall.

Resource Constant	Base year Cost N	Current year Cost N	Current Index
Blocks	8	10	125
Mortar	1.50	2	125
Labour	4.50	5	111
		÷ 3	361

average index = 120.33

This method assumes the base year index to be 100. The above illustration could be said to assume that the contribution in weight of every resource constant is the same in terms of the overall cost of the wall area considered. However, cost of b ocks are definitely many times more important to the ove all cost than that of mortar used. Therefore further developments have been made in such a way that, the weighting of every resource constant is taken against its index, before a final average index is achieved, thus:-

Resource constant	Index	Base year weightings	weighted index
Blocks	125	8	1000
Mortar	125	1.50	187.50
Labour	111	4.50	499.50
		14	1687 ÷ 14
		average weighted index	120.50

Problems with the base year weightings could arise in the simple sense that, one or more of the resource constants, could now be more important than what it was at the base year. For instance, the importance of Labour increases by 20% and mortar by 33%, then the weightings will have to be updated to the current values as illustrated in the following example.

Resource Constant	Index	Current year weighting	Current year weighted Index
Blocks	125	8	1000
Mortar	125	2.00	250
Labour	111	5.00	555.00
		15	1805 ÷ 15
		average revised weighted Index	120.33

The changing nature of the importance of the resource constant in regard to contribution to overall cost, due to further developments in both construction technology and design, as mentioned in early parts of this work, poses a lot of problems to this method of construction of indices, as it becomes clearly difficult to judge productivity particularly in regard to the construction of the whole building.

For this reason, resource weighting in the construction of the building cost index, usually remains constant until a detailed revision of the index is undertaken and a further analysis of the importance of each resource is made.

An index that uses the base year weightings in its construction is called the Lapspeyres index, while the index that uses the current year weightings is known as the Paasche index.

Another important factor that is not considered by the factor cost index, is the contractors Profit and overheads which very much shows the pattern of the market prices. But to make up for this, in some cases, such indices carry addtional components called market "conditions" allowance, that is mostly based on Professional judgements of the index developer.

The former illustration however, deals with the simple problem of construting an index for an item of work, when an index is to be developed for a whole building, the problem becomes more complex though the procedure remains the same.

Below is an illustration of the procedure for the development of an index for the overall building.

i. A typical building is selected and an analysis of the overall constituents proportions (Labour, Material and Plant) is carefully made.

ii. As the analysis takes place, resources are allocated under various headings depending on the classification under which the index is desired, also the available cost information on the Cost factors.

iii. The different types of labour will be identified and the basis of evaluation of unit cost of labour identified and this usually includes the following:

a. Change in hourly or weekly wage rate

b. Change in employee's "in cost" and constributes such as holidays with pay etc.

c. Changes in the agreed standard working week

d. Changes in the average hour worked per week, as recorded in gervenment statistics.

e. Changes in Productivity

f. Change in location

The labour unit cost of each type of labour is computed and weighted according to its importance in the total labour force. The average weighted index is taken forward for the average weighted overall index calculation in relation to other resource constants.

iv. Materials rate forcomparison with the base year rates and carried forward to the final weighted average index computation. This will also have to be based on the importance of each material in the final value of materials used.

v. Plant types and weightings are sorted out and an average index taken forward for the computation of the final index for the whole building.

vi. When the weighted index for each of the resources (labour, materials & plant) is computed, this is brought forward for a final weighting based on the overall building and a final weighted average index for the overall building is developed. A typical overall weighting for the building resources costs in Nigeria as experience and analyses have shown are as follows:

Labour	20-30%
Material	60-70%
Plant	5-10%

The final weighted index got from the procedure discussed is the change in cost of the overall building from one point in time to another.

It must be now glaringly clear that, the factor cost index shows the change in resource costs for the particular category of building, rather than the current price the client has got to pay for the same category of building, despite the market "conditions" allowances made by the developer out of Professional experience. Care should be taken such that this method is not applied to projects with different resource mix, as any possible unforseen change could distort the final index.

The factor cost index, in spite of its drawbacks, is suitable for identifying trends in resource costs and relationships. It is also particularly useful for Fluctuations Adjustments in contracts which allow for reimbursement to contractor for change in cost that occur within the contract period.

2.3.0 Tender based Index

Unlike the factor cost index, the tender based index has taken into consideration the market conditions and gives the client changes in market price he has to pay for the building. This makes this index very suitable for forecasting and Budgetting purposes.

The procedure however, involves the repricing of Tender Bills of Quantities for typical project at the current year rates or rates at any point in time, and the shift in overall cost is ascertained and used in the development of an index referred to as a tender based index.

Here, the validity of the Bills of Quantities rates will be very much in question as it is the accepted tender Bills of Quantities rates that are always used in this exercise. To eliminate this uncertainty, a large sample of similar tenders will have to be used such that an average index is finally produced from each of the individual results obtained. This is so because, if a large (80 projects) sample of Bills of Quantities is used, it is likely that all differences will cancel out except the differences in current level of cost which is what the developer is after.

A summary of the procedure for preparing and using a typical tender-based index is summarised as follows:

i. Prepare a schedule of Priced Bills of Quantities items at *the prevailing base year* *Pricing levels*, with possible additions for Preliminaries.

ii. Select the Priced Bill for the lowest tender received and take down the format, whether work section, elemental etc.

iii. From each sections select the items of highest value in a decreasing order of value until you reach at least ¼ of the total value of the section or element. This, however, should exclude, PC, Provisional sums, Preliminary items and profit, attendances, and dayworks additions.

iv. For each of the items selected, compare the rate with similar item in the schedule made from the base year.

v. Extend these items at the current year rates and compare the extended totals for each section with that of the base year and generate an index.

vi. The index got for each section or element is carried forward and weighted to the section's proportion to the overall cost of the building less Preliminaries, PC and Provisional sums etc).

vii. The Preliminaries are usually adjusted through percentage addition to the Bill rates excluding dayworks and contingencies. Therefore the index got so far is not a final one as the net Bill rates have been compared with gross base rates. If the false index is say 110 and the Preliminaries is say 5% of the value of the current tender then the final index will be:

$$110 + \left(110 \times \frac{5}{100}\right) = 115.5$$

viii. An average index is obtained by taking an average of the index numbers for all projects that were sampled in a specified time period, by either taking the geometric or arithmetric means. The difference between the mean of the current and proceeding quarters or months is used to asses the movement in tender prices.

In spite of other problems that are associated with this type of index, it has quite a few advantages over the factor cost index e.g.

i. It measures the change in the cost to the client at a point in time, taking into consideration the market conditions over and above the change in cost to the contractor.

ii. It is relatively simple to operate once a base schedule of prices has been obtained.

iii. Where national or regional averages are available, it provides a basis of comparison for the price obtained by tender of a project with the natural or regional trend. Assisting the Quantity Surveyors in deciding whether to call for tenders from another set of contractors or not.

iv. It allows the plotting of relationship between marketprice for buildings and their different funtions and location.

v. As this is not based on other indices the level of inaccuracies due to such dependance is eliminated.

As pointed out earlier, the requirement of a large sample of projects for the analysis may be difficult, as not many firms could have this variety of information for a particular point in time. This usually leads to the data usually used being more biased towards either a particular function or location, and this may lead to some errors in the trends plotted. Finally, as this method involves the constant revision of the base year schedule to take care of new products, new methods of measurements etc, it could be costly and time consuming.

2.40 Some Published Indices

In spite of the non availability of Building Cost indices published in Nigeria, a brief discussion on some forms of indices published in some parts of the world is desirable. The various construction indices published by different organisations in the United Kingdom are most relevant to this discussion.

Depending on the current development at any point in time, organisations such as the Royal Institution of Chartered Surveyors' Building Cost Information Service, (BCIS) Department of Environment (DOE), Department of trade and Industry, NEDO, all published both factor based and tender based indices for various uses in the construction industry.

i. BCIS building cost index. This was originally based on a breakdown of four types of Projects into their constituent resources. Later with the introduction of the NEDO formula for fluctuation adjustments, the BCIS decided to produce six different factor cost indices using NEDO information and weightings obtained from the analysis of forty two Bills of Quantities. The BCIS also, has developed a tender base index which involve the development of two indices, one ralating to a fluctuating contract and the other to a fixed price contract. This attempts at solving the problem of the different allowances made in tender figures for future variatons in price.

ii The DOE Cost indices.

The Department of Environment has developed two types of indices:

i. The cost of new contruction index, which is a factor based index that takes into account the movement in price of materials and labour including an allowance for productivity, and

ii. The Building tender prices, under which is a tender based index that gives the level of pricing contained in tender for new work obtained by the Department of Environment.

iii. The NEDO formula:

This is a series of indices that divide building projects into various categories (1st series 34 categories, 2nd series 42 categories) and is constructed from the analyses of a large number of Bills of Quantities, whose categories are divided into their resource constituents (Labour Plant and material). The indices are developed based on market prices, agreed labour wages etc, to primarily provide a basis for computing fluctuations.

2.5.0. Formula Method of Price Adjustment for Building Contracts:

2.5.1 Background

As Prices have never been known to be steady for a moderate length of time, coupled with the International economic fact that there has never been deflation but rather inflation, most contractual arrangements favour the allowance for reimbursement for change in prices. With such provisions in contractual arrangements, various methods of computing these reimbursements have been developed. For example the traditional method that works out the Quantities of materials used within the period variations in prices are said to occur: The difference between the current price and the tender price is computed and applied to the Quantity of materials used to get the net fluctuation. Changes in labour wages too, are computed through a careful study of the wage sheets to get the total labour hours worked, which is multiplied by the difference in hourly wage rates to get the net fluctuations in labour.

However, this method has been known to have many disadvantages, as it is rigorous and time consuming, therefore expensive to use.

Building contractual arrangements are usually based on the JCT (Joint Contract Tribunal) forms of building contract. These forms however, have laid down items on which a variation in price could be recovered, which leads to many expenses due to variations in price not being reimbursed for. Items on which the contractor cannot be reimbursed under the JCT form of contract are:-

i. Incentive payments when adjusted as a result of changes in rates of wages.

ii. Wages not governed by a recognised wage fixing body

iii. Plant charges

iv. Overhead charges & profit

v. Materials not specifically included in the Basic Price list.

vi. Consumables

vii. The training Levy board.

To overcome the problems of the conventional method being too expensive and time consuming, and the "short-fall" between actual variations and reimbursement that has been shown to range between 25% and 40%, a formula method of fluctuations Adjustment for Building contract has been developed. Which is quick to use and reimburses more accurately the contractors actual expenses due to price variations.

This formula is based on indices constructed from the change in price of the resource constants of various work categories of the overall works, each constant is weighted according to its importance to the overall cost of the building. This is similar to the factor cost method of constructing an index that has been described earlier.

2.5.2 Use of the fomula method

The formula method is basically used to reimburse contractors their expenses due to price fluctuations under building contracts. The method of adjustment however, involves the division of work carried out into various categories, and an index already developed and updated monthly is used to adjust the relevant fluctuations as folows:

Supposing a monthly valuation summary is as follows:

	Total to date	Previous total	Value this Period
	N	N	N
Excavation	4000	2,500	1,500
Concretework	600	300	300
Daywork	100	-	100
Materials on Site	50	-	50
Increased Costs	to be calculated	20	to be calculated
Preliminaries	400	150	250
		2970	
Retention 5%		148	
		2822	

The increased costs could be got as follows:

Category	Value	Indices Base	Valuation	Change		Increased Costs
Excavation	N1500	105	110	$\frac{110-105}{105}$	=	N1500x0.048
					=	71.43
Concretework	N300	104	108	$\frac{108-104}{104}$	=	N300x0.039
					=	11.54

Total increased cost on work alocated to categories = N82.97

Preliminaries = $\frac{\text{Increase}}{250} = \frac{82.97}{1800}$ ∴ Increase = N11.52

Total increase = N94.49

The completed valuation would be:

a. Measured work attributable to	4,000	
Categories	600	4,600
b. Preliminaries etc		400
c. Dayworks)) at current rates		100
d. Materials on site)		50
e. Increased Costs		
Last months	20	
This month	94.49	
	114.49	

	114.49
Total	5264.49
less Retention 5%	263.22
	5001.27
less Previous Payments	2822.00
Amount of this Valuation	N2179.27

It should be noted that retention is deducted from the overall total including the increased costs, as per clause 31f of the JCT form of contract.

Most professionals are sceptical about the use of the formula method in contracts that exceed a period of two years, because contractors usually want to be certain of their recovery of increased costs. Due to limited experience in using the formula method over a long period, contractors do get uncertain, hence decline the use of the formula method for contracts with longer completion periods than 2 years. However, it has been proved that the shortfall when the formula is used for whatever duration of contract will definitely be lower than the shortfall when the traditional method is used, making the formula method an appropriate course to follow whatever the duration of the contract.

CHAPTER III

DATA COLLECTION AND ANALYSIS

3.1.0 Sources and Collection of data

As this exercise is limited to A.B.U. projects for for reasons mentioned earlier, most of the data used in this work was obtained from the Projects Office of the University. Bills of Quantities for tenders submitted to A.B.U. were collected for a period of 10 years, fairly, at regular intervals (from 1974 - 1984). In spite of the constraints due to non-availability of desired data, enough was obtained to enhance the take off of this exercise. Rates for work items in the Bills of Quantities for each of the years in which the analysis is caried out, were obtained through an average of 32 No. tender Bills of Quantities submitted at such intervals. As most contractual arrangements are based on fluctuating prices, schedules of basic prices of materials and labour are usually submitted at the time of tender. From these schedules in the tender Bills, basic Prices for key materials were collected at the same intervals as the Bills.

Reference had to be made to some of the consultants, for few of the Projects (eg Faculty of Human Medicine), to resolve difficulties encountered with the collection of accepted tender submissions for the projects.

3.2.0 Construction of Indices

3.2.1 Tender base Index: Tender Bills of Quantities for the five selected projects mentioned in the early parts of this work, were repriced at 1974, 1975, 1976, 1977, 1979, 1982 and 1984 tender Bills rates, collected from the average of 32 No. tender submissions. However, Preliminaries contingencies, Pc and Provisional sums and their associated Profits and attendance were not included in the pricing. Indices or degrees of increase were computed for each of the Projects based on the final values less Pc, Provisional sums, Preliminaries etc. An adjustment was made for this amount using the indices or rates of increase derived from the analysis. The values of the Prelims, Pc, Provisional sums etc, at that point in time, was then added to the extended value of the Bills, priced at the same time, to get the total tender submission at that time. Based on this total, an index for each of the years is developed with 1974 as the base year; with an index of 100. These indices are then plotted using the natural values against the respective periods. To prove that these indices really show the market trend to the client, a rate of increase for each interval is calculated and represented on graph. This however gave almost the same curve as that of the indices, proving the hypothesis, that, the tender based indices, have the advantage over factor cost indices of taking into consideration the building market condition.

For extrapolation purposes, the logarithmic values of the indices were plotted against the time so that a straightline relationship was obtained. This will enhance extrapolation and subsequent forecasting and Budgetting, for all forms of reinforced concrete framed buildings at Ahmadu Bello University Zaria.

FACULTY OF HUMAN MEDICINE

1974

1.	Total Project Cost	N4,110,567.07
2.	P.C. Provision Sums and Prelims	N2,167,462.50
3.	Project Cost less (2)	N1,943,104.57

1975

Project Cost N3,118,169.51

Less PC, Provisional sums and Prelims

$$\text{Index} = \frac{3,118,169.51}{1,943,104.57} = 1.60$$

∴ PC, Provisional sums & Prelims =

2,167,462.50x1.60

= N3,467,940.00

Total Project Cost = N6,586,109.50

1976

Project Cost = N3,167,260.30

Less PC Provisional sums and Prelims

Index $\frac{3,167,260.30}{1,943,104.51}$ = 1.63

P.C. Provisional sums & Prelims = 2,167,462.50x1.63

= N3,532,963.80

Total project Cost N6,700,224.10

1977

Project Cost N3,376,223.50

less PC, Provisional sums & Prelims

Index $\frac{N3,376,223.50}{N1,943,104.51}$ = 1.74

PC & Provisional sums and Prelims = 2,167,462.50x1.74

= N3,771,384.70

Total Project Cost = N7,147,608.20

1979

Project Cost less PC, Provisional sums and Preliminaries N3,397,811.10

Index = $\frac{3,397,811.10}{1,943,104.57}$ = 1.75

PC, Provisional sums and Preliminaries = 2,167,462.50x1.75

= N3,793,059.30

Total project Cost = N7,190,870.60

1982

Project Cost less PC, Provisional sums and Preliminaries N5,862,374.10

Index = $\frac{5,862,374.10}{1,943,104.57}$ = 3.02

PC, Provisional sums and Preliminaries = 2,167,462.50x3.02

= N6,545,736.70

Total Project Cost = N12,408,110.00

SPORTS COMPLEX

1975

Total project cost N1,470,079.00

PC, Provisional sums & Prelims = N658,695.00

Project Cost less PC, Provisional sums and Preliminaries = N861,979.00

1974

Project cost less PC, Provisional sums & Preliminaries = N410,616.00

Index = $\frac{410,616}{861,979}$ = 0.48

PC, Provisional sums & Preliminaries = 658,695x0.48

= N313,778.71

Total project cost = N724,394.71

1976

Project Cost less PC, Provisional sums

and preliminaries = N1,077,473.70

Index $\frac{1,077,473.70}{861,979.00}$ = 1.25

P.C. Provisional sums & Prelims = 658,695x1.25

=N823,368.70

Total project cost = N1,900,842.40

1977

Project Cost less PC, Provisional sums

& Preliminaries

Index $\frac{1,094,713.30}{861,979.00}$ = 1.27

PC, Provisional sums and preliminaries = 658,695.00x1.27

= N836,542.65

Total Project Cost = N1,931,255.90

1979

Project cost less PC & Provisional sums and preliminaries N1,111,952.90

Index $\frac{1,111,952.90}{861,979.00}$ = 1.29

PC, Provisional sums and prelims = 658,695x1.29

= N849,716.55

Total project cost = N1,961,669.40

1982

Project cost less PC, provisional sums and Preliminaries N1,844,635.00

Index $\frac{1,844,635.00}{861,979.00}$ = 2.14

PC, Provisional sums and Preliminaries 658,695x2.14

= N1,409,607.30

Total project cost = N3,254,242.30

1984

Project Cost less PC, Provisional sums and Preliminaries		N1,999,791.20
Index	$\frac{1,999,791.20}{861,979}$	= 2.32
PC, Provisional sums and Preliminaries		N658,695x2.32
		= N1,528,172.40
Total Project Cost		N3,527,963.60

A.B.U. BOOKSHOP

1976

Total project cost	N1,088,287.40
PC, Provisional sums and Preliminaries	N454,200.00
Project cost less PC, Provisional sums and Preliminaries	N634,087.40

1974

Project cost less PC, Provisional sums and Preliminaries		N418,497.68
Index	$\frac{418,497.68}{634,087.40}$	= 0.66
PC, Provisional sums & Preliminaries		= 454,200x0.66
		= N299,772.00
Total project cost		= N718,269.68

1975

Project cost less PC, Provisional sums and preliminareis N551,656.03

Index $\frac{551,656.03}{634,087.40}$ = 0.87

PC, Provisional sums & Preliminaries = 454,200x0.87

= N395,154.00

Total Project cost = N946,810.03

1977

Project cost less PC, Provisional sums & Preliminaries N836,995.36

Index $\frac{836,995.36}{634,087.40}$ = 1.32

PC, Provisional sums & Preliminaries = 454,200 x 1.32

= N599,544.00

Total Project cost = N1,436,539.30

1979

Project cost less PC, Provisional sums
and Preliminaries N1,276,841.61

Index $\frac{1,276,841.61}{634,087.40}$ = 2.01

PC, Provisional sums & preliminaries 454,200x2.01

= N912,942.00

Total Project cost = N2,189,783.60

1982

Project cost less PC, Provisional sums
and Preliminaries N1,585,218.50

Index $\frac{1,585,218.50}{634,087.40}$ = 2.50

PC, Provisional sums & Preliminaries = 454,200x2.50

= N1,135,500.00

Total project cost = N2,720,718.50

1975

Project cost less PC, Provisional sums & Preliminaries N445,827.69

Index $\frac{445,827.69}{526,177.73}$ = 0.85

PC, Provisional sums & Preliminaries 474,580x0.85

= N402,109.16

Total project cost = N847,936.85

1976

Project cost less PC, Provisional sums & Preliminaries N510,392.39

Index $\frac{510,392.39}{526,177.73}$ x 0.97

PC, Provisional sums & Preliminaries = 474,580 x 0.97

N460,342.60

Total Project Cost N970,734.99

1979

Project cost less PC Provisional sums & Preliminaries N594,580.83

Index $\frac{594,580.83}{526,177.73}$ x 1.13

PC, Provisional sums and Preliminaries 474,580x1.13

= N536,275.40

Total Project Cost N1,130,856.20

1982

Project cost less PC, Provisional sums and Preliminaries N

Index $\frac{752,434.15}{526,177.73}$ x 1.43

PC, Provisional sums and Preliminaries 474,500x1.43

= N678,649.40

Total project cost N1,431,083.55

1984

Project cost less PC, Provisional sums and Preliminaries N773,481.26

Index $\frac{773,481.26}{526,177.73}$ x 1.47

PC, Provisional sums and Preliminaries = 474,580x1.47

= N697,632.60

Total project cost = N1,471,113.86

1977

Project csot less PC, Provisional sums & Preliminaries N730,261.95

Index $\frac{730,261.95}{849,141.80} \times 0.86$

PC, Provisional sums & Preliminaries 342,400x0.86

N294,464

Total project Cost N1,024,725.95

1982

Project less PC, Provisional sums & Preliminaries = N1,018,970.16

Index $\frac{1,018,970.16}{849,141.80} \times 1.20$

PC, Provisional sums & Preliminaries = 342,400x1.20

= N410,880

Total project cost N1,429,850.16

AGRONOMY BUILDING

1979

Total project cost	N1,130,141.86
PC, Provisional sums and Preliminaries	N342,400
Project cost less PC, Provisional sums and Preliminaries	N849,141.80

1974

Project cost less PC, Provisional sums and Preliminaries	N450,045.14

Index $\frac{450,045.14}{849,141.80} \times 0.53$

PC, Provisional sum & Preliminaries	= 342,400x0.53
	= N181,472.00
Total project cost	= N631,517.14

1975

Project cost less PC, Provisional sums

and Preliminaries N646,337.73

Index $\frac{646,337.73}{849,141.80} \times 0.76$

PC, Provisional sums & Preliminaries 342,400 x 0.76

= N260,224

Total Project Cost = N906,561.73

1976

Project cost less PC, Provisional sums

and Preliminaries

Index $\frac{653,657.99}{849,141.80} = 0.77$

PC, Provisional sums & Preliminaries = 342,400x0.77

= 263,648.00

Total project cost = 917,305.99

1984

Project cost les PC, Provisional sums N1,282,204.12

Index $\frac{1,282,204.12}{849,141.80} \times 1.51$

PC, Provisional sums and Preliminaries 342,400 x 1.51

= N517,024

Total project cost = N1,799,228.12

FACULTY OF HUMAN MEDICINE

YEAR	TENDER VALUE
1974	N4,110,567.07
1975	N6,586,109.50
1976	N6,700,224.10
1977	N7,147,608.20
1979	N7,190,870.60
1982	N12,408,110.00
1984	N13,934,307.53

SPORTS COMPLEX

YEAR	TENDER VALUE
1974	N724,394.71
1975	N1,470,079.00
1976	N1,900,842.40
1977	N1,931,255.90
1979	N1,961,669.40
1982	N3,254,242.30
1984	N3,527,963.60

A.B.U. BOOKSHOP

YEAR	TENDER VALUE
1974	N718,269.68
1975	N946,810.03
1976	N1,088,287.40
1977	N1,436,539.30
1979	N2,189,783.60
1982	N2,720,718.50
1984	N3,055,366.88

KITCHEN LAUNDARY AND GENERAL WARDS

YEAR	TENDER VALUE
1974	N787,196.73
1975	N847,936.85
1976	N970,734.99
1977	N1,000,757.73
1979	N1,130,856.20
1982	N1,431,083.55
1984	N1,471,113.86

AGRONOMY BUILDING

YEAR	TENDER VALUE
1974	N631,517.14
1975	N906,561.73
1976	N917,305.99
1977	N1,024,725.95
1979	N1,130,141.80
1982	N1,429,850.16
1984	N1,799,228.12

INDICES WITH 1974 AS BASE YEAR

BASE YEAR INDEX = 100

1975

1. Human Medicine = $100 + 100\frac{(6,586,109.50 - 4,110,567.07)}{4,110,567.07}$

= 160

2. Sports Complex = $100 + 100\frac{(1,470,079 - 724,394.71)}{724,394.71}$

= 203

3. University Bookshop = $100 + 100\frac{(946,810.03 - 718,269.68)}{718,269.68}$

= 132

4. Kitchen, Laundary & Wards = $100 + 100\frac{(847,986.85 - 787,196.73)}{787,196.73}$

= 108

5. Agronomy building = $100 + 100\frac{(906,561.73 - 631,517.14)}{631,517.14}$

= 144

Average Index = 149.40

1976

1. Faculty of Human Medicine = $100 + 100\left(\frac{6,700,224.10 - 4,110,567.07}{4,110,567.07}\right)$

= 163

2. Sports Complex = $100 + 100\left(\frac{1,900,842.40 - 724,394.71}{724,394.71}\right)$

= 269

3. University Bookshop = $100 + 100\left(\frac{1,088,287.40 - 724,394.71}{718,269.68}\right)$

= 152

4. Kitchen, Laundary & Wards = $100 + 100\left(\frac{970,734.99 - 787,196.73}{787,196.73}\right)$

= 123

5. Agronomy Building = $100 \quad 100\left(\frac{917,305.99 - 631,517.14}{631,517.14}\right)$

= 145

Average Index = 169

1977

1. Faculty of Human Medicine = $100 + 100\left(\frac{7,147,608.20 - 4,110,567.07}{4,110,567.07}\right)$

= 174

2. Sports Complex = $100 + 100\left(\frac{1,931,255.90 - 724,394.71}{724,394.71}\right)$

= 267

3. University Bookshop = $100 + 100\left(\frac{1,436,539.30 - 718,269.68}{718,269.68}\right)$

= 200

4. Kitchen, Laundary & Wards = $100 + 100\left(\frac{1,000,757.73 - 787,196.73}{787,196.73}\right)$

= 127

5. Agronomy Building = $100 + 100\left(\frac{1,024,725.95 - 631,517.14}{631,517.14}\right)$

= 162

Average index = 186

1979

1. Faculty of Human Medicine = $100 + 100\left(\frac{7,190,870.60 - 4,110,561.07}{4,110,567.07}\right)$

= 175

2. *Sports Complex* = $100 + 100\left(\frac{1,961,669.40 - 724,394.71}{724,394.71}\right)$

3. University Bookshop = $100 + 100\left(\frac{2,189,783.60 - 718,269.68}{718,269.68}\right)$

= 305

4. Kitchen, Laundary & Wards = $100 + 100\left(\frac{1,130,856.20 - 787,196.73}{787,196.13}\right)$

= 144

5. Agronomy Building = $100 + 100\left(\frac{1,130,141.80 - 631,514.14}{631,517.14}\right)$

= 179

Average index = 214

1982

1. Faculty of Human Medicine = $100 + 100\left(\frac{12,408,110.00 - 4,110,567.07}{4,110,567.07}\right)$

= 302

2. Sports Complex = $100 + 100\left(\frac{3,254,242.30 - 724,394.71}{724,394.71}\right)$

= 449

3. University Bookshop = $100 + 100\left(\frac{2,720,718.50 - 718,269.68}{718,269.68}\right)$

= 379

4. Kitchen, Laundary & Wards = $100 + 100\left(\frac{1,431,083.55 - 787,196.73}{787,196.73}\right)$

= 182

5. Agronomy Building = $100 + 100\left(\frac{1,429,850.16 - 631,517.14}{631,517.14}\right)$

= 226

Average Index = 307.60

1984

1. Faculty of Human Medicine = $100 + 100\left(\frac{13,934,307.53 - 4,110,567.07}{4,110,567.07}\right)$

= 339

2. Sports Complex = $100 + 100\left(\frac{3,527,963.60 - 724,394.71}{724,394.71}\right)$

= 487

3. Univsersity Bookshop = $100 + 100\left(\frac{3,055,366.88 - 718,269.68}{718,269.68}\right)$

= 425

4. Kitchen, Laundary & Wards = $100 + 100\left(\frac{1,471,113.86 - 787,196.73}{787,196.73}\right)$

= 187

5. Agronomy Building = $100 + 100\left(\frac{1,799,228.12 - 631,517.14}{631,517.14}\right)$

= 285

Average index = 344.60

SUMMARY OF AVERAGE YEARLY INDICES

Base year 1974 - Base Index 100

Year	Average Index	$\log_{10}$	lnx
1975	149.40	2.174	5.006
1976	169.00	2.228	5.130
1977	186.00	2.270	5.22
1979	214.00	2.330	5.366
1982	307.60	2.488	5.729
1984	344.60	2.537	5.842

AVERAGE RATES OF INCREASE

Period 1974 - 1975

1. Facaulty of Human Medicine = $\frac{6,586,109.50 - 4,110,567.07}{4,110,567.07}$ = 60%

2. Sports Complex = $\frac{1,470,079.00 - 724,394.71}{724,394.00}$ = 103%

3. University Bookshop = $\frac{946,810.03 - 718,269.68}{718,269.68}$ = 32%

4. Kitchen, Laundary & Wards = $\frac{847,936.85 - 787,196.73}{787,196.73}$ = 8%

5. Agronomy Building = $\frac{906,561.73 - 631,517.14}{631,517.14}$ = 44%

Average rate of Increase = 49.4%

1975 - 1976

1. Faculty of Human Medicine = $\frac{6,700,224.10 - 6,586,109.50}{6,586,109.50}$ = 2%

2. Sports Complex = $\frac{1,900,842.40 - 1,470,079.00}{1,470,079.00}$ = 29%

3. University Bookshop = $\frac{1,088,287.40 - 946,810.03}{946,810.03}$ = 15%

4. Kitchen, Laundary & Wards = $\frac{970,734.99 - 847,936.85}{847,936.85}$ = 14%

5. Agronomy Building = $\frac{917,305.99 - 906,561.73}{906,561.73}$ = 1%

Average rate of increase = 12.20%

1976 - 1977

1. Faculty of Human Medicine = $\frac{7,147,608.2 - 6,700,224.10}{6,700,224.10}$ = 7%

2. Sports Complex = $\frac{1,931,225.90 - 1,900,842.40}{1,900,842.40}$ = 2%

3. University Bookshop = $\frac{1,436,539.30 - 1,088,287.40}{1,088,287.40}$ = 32%

4. Kitchen, Laundary & Wards = $\frac{1,000,757.73 - 970,734.99}{570,734.99}$ = 3%

5. Agronomy Building = $\frac{1,024,725.95 - 917,305.99}{917,305.99}$ = 12%

Average rate of increase = 11.20%

1977 - 1979

1. Faculty of Human Medicine = $\frac{7,190,870.60 - 7,147,608.20}{7,147,608.20}$ = 1%

2. Sports Complex = $\frac{1,961,669.40 - 1,931,255.90}{1,931,255.90}$ = 2%

3. University Bookshop = $\frac{2,189,783.60 - 1,436,539.30}{1,436,539.30}$ = 52%

4. Kitchen, Luandary & Wards = $\frac{1,130,856.20 - 1,000,757.73}{1,000,757.73}$ =13%

5. Agronomy Building = $\frac{1,130,141.80 - 1,024,728.95}{1,024,725.95}$ = 10%

Average rate of increase 15.60%

1979 - 1982

1. Faculty of Human Medicine = $\frac{12,408,110 - 7,190,810.6}{7,190,870.60}$ = 73%

2. Sports Complex = $\frac{3,254,242.30 - 1,961,669.40}{1,961,669.40}$ = 66%

3. University Bookshop = $\frac{2,720,718.50 - 2,189,783.60}{2,189,783.60}$ = 24%

4. Kitchen, Laundary & Wards = $\frac{1,431,083.55 - 1,130,856.20}{1,130,856.20}$ = 27%

5. Agronomy Building = $\frac{1,429,850.16 - 1,130,141.80}{1,130,141.80}$ = 27%

Average rate of increase = 43.40%

1982 - 1984

1. Faculty of Human Medicine = $\frac{13,934,307.53 - 12,408,110.00}{12,408,110.00}$ = 12%

2. Sport Complex = $\frac{3,527,963.60 - 3,254,242.30}{}$ = 8%

3. University Bookshop = $\frac{3,055,366.80 - 2,720,718.50}{}$ = 12%

4. Kitchen, Laundary & Wards = $\frac{1,471,113.86 - 1,431,083.55}{1,431,083.55}$ = 3%

5. Agronomy building = $\frac{1,799,228.12 - 1,429,850.16}{1,429,850.16}$ = 26%

Average rate of increase = 12.2%

SUMMARY OF AVERAGE RATES OF INCREASE

1974 - 1975	49.4%
1975 - 1976	12.20%
1976 - 1977	11.20%
1977 - 1979	10%
1979 - 1982	43.40%
1982 - 1984	12.20%

FIG. (1) AVERAGE INDEX Vs TIME

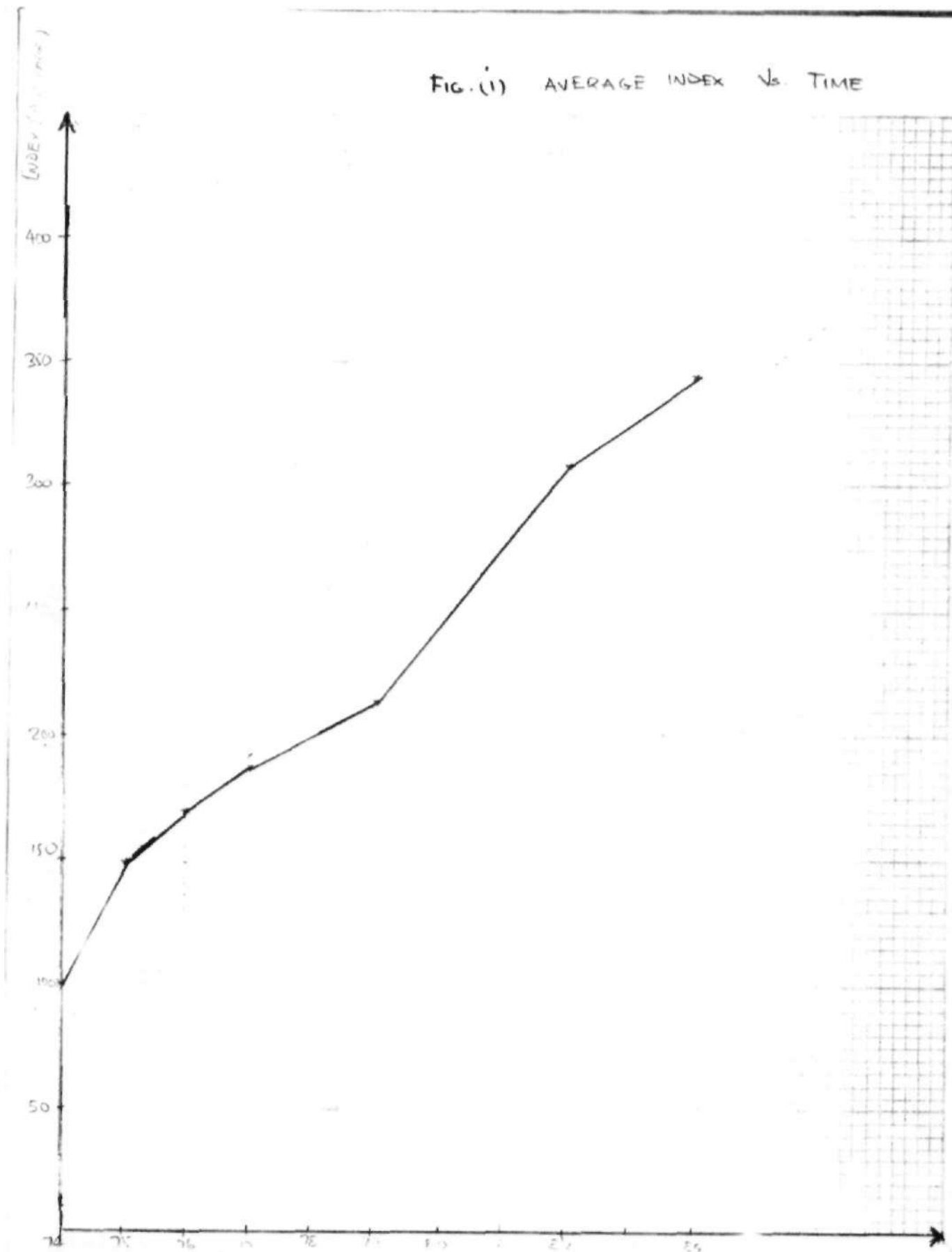


FIG (ii) RATE OF INCREASE OF COST Vs PERIOD

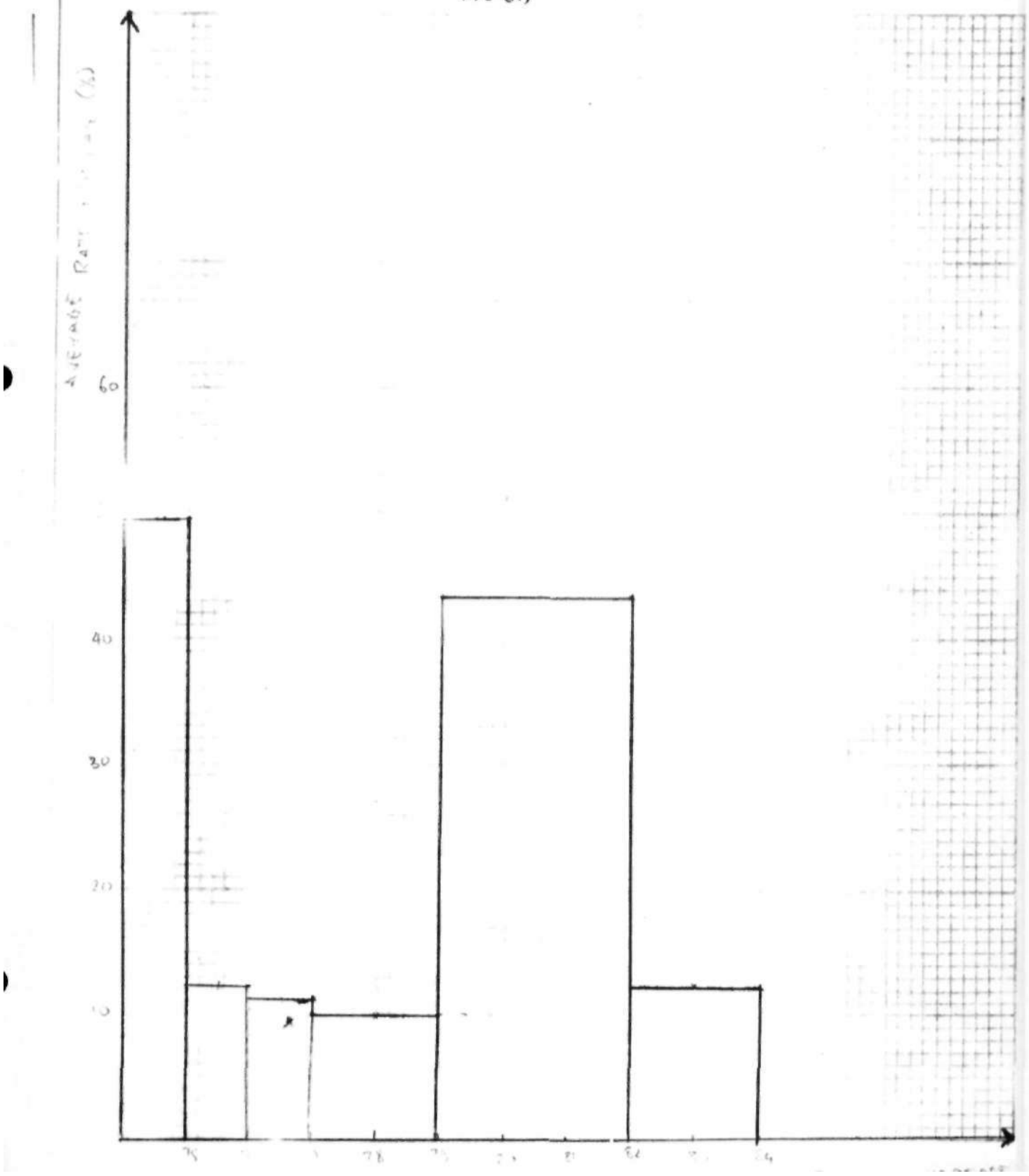
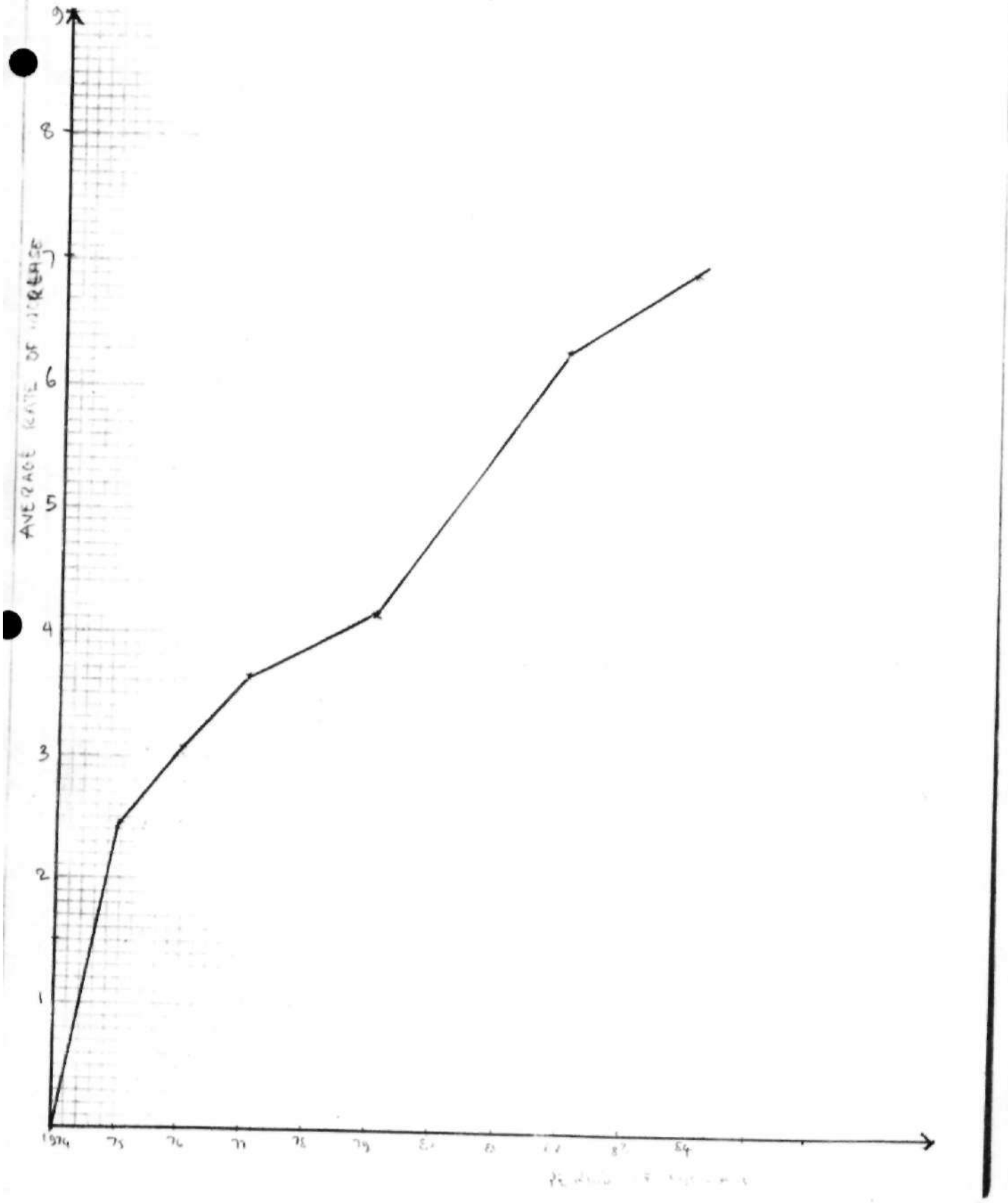


Fig (iii) RATE OF INCREASE ... TIME



FIG(iv) LOG_{10} ANTIBODY ... TIME

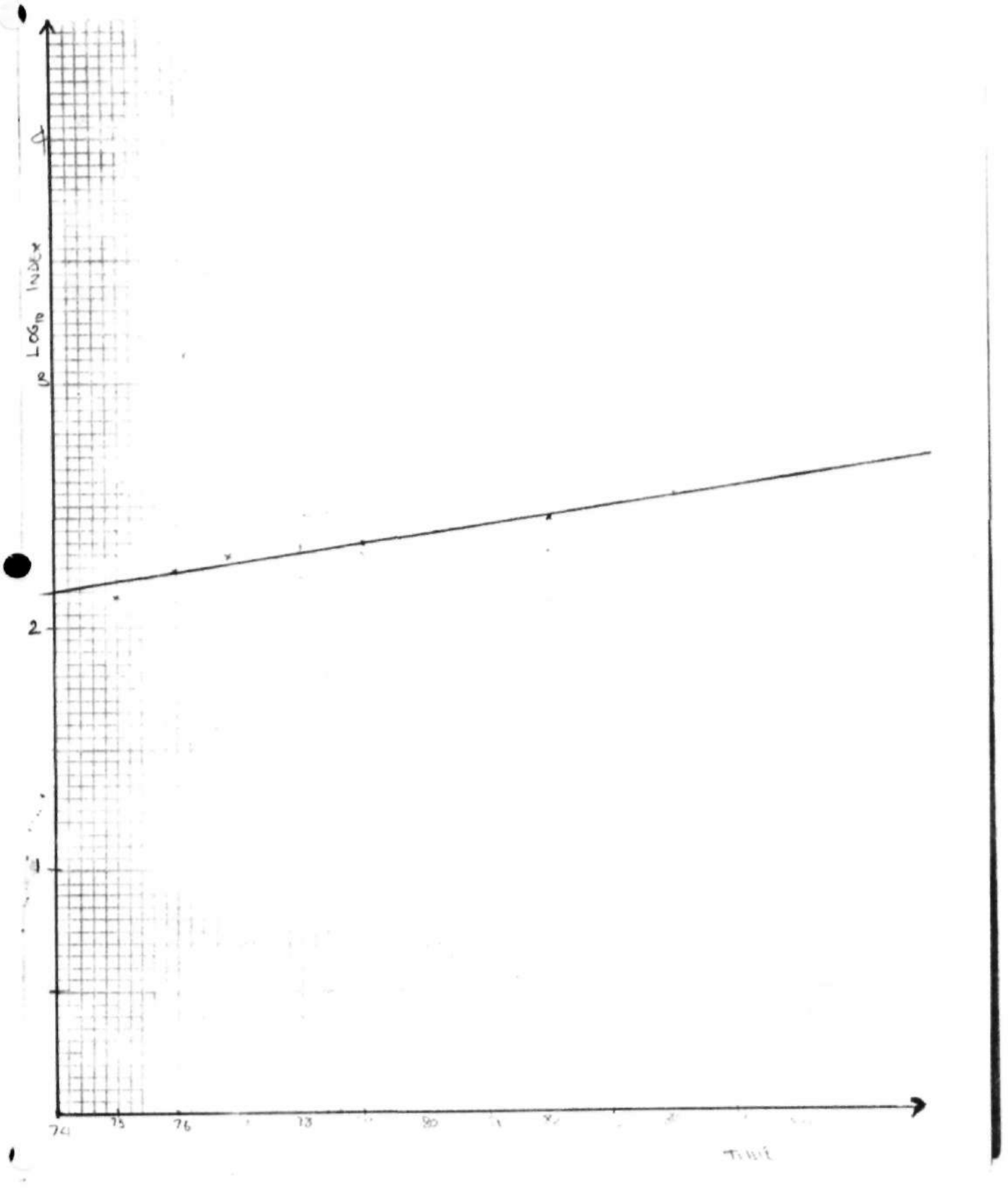
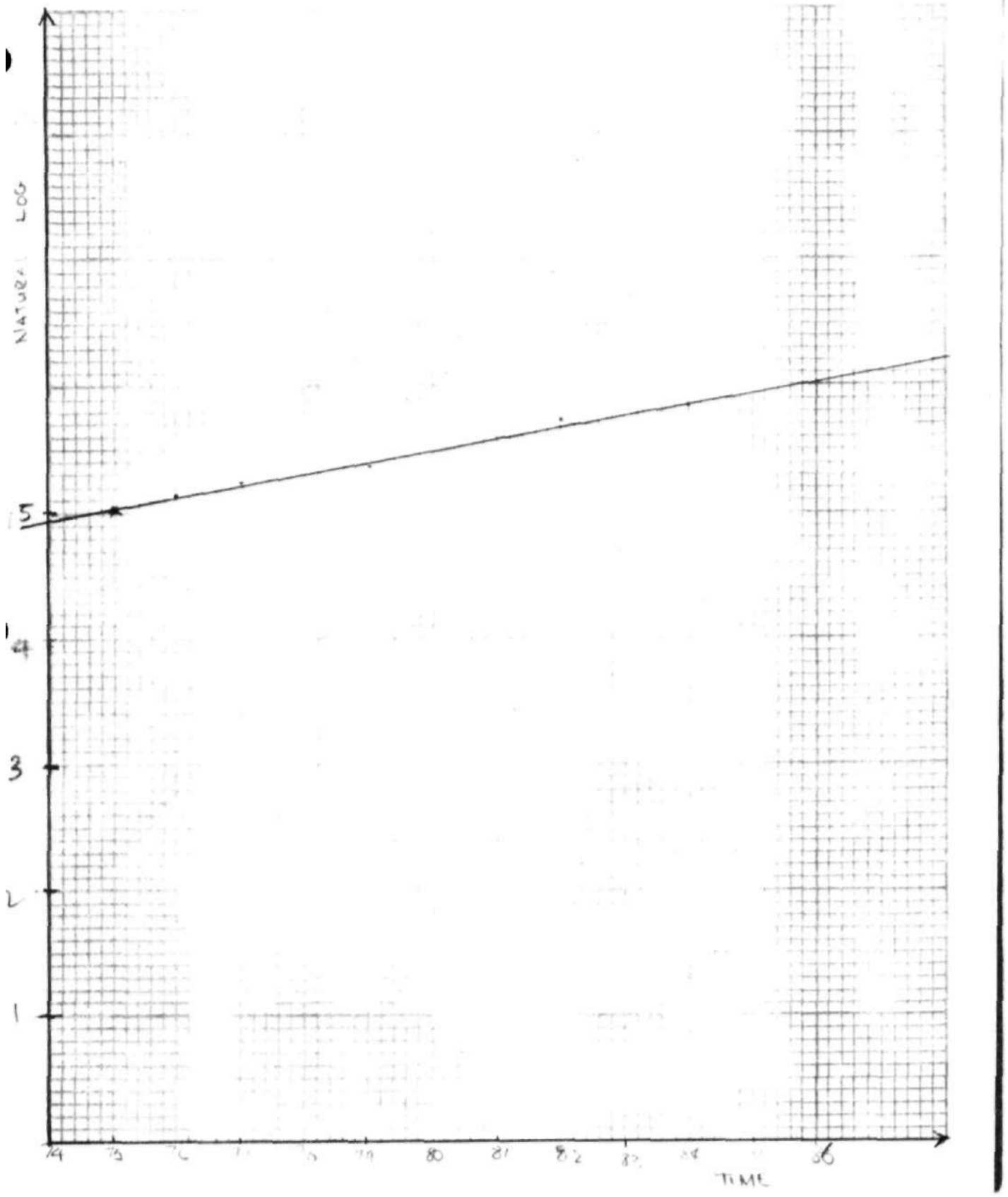


FIG (V) ln [illegible] Vs TIME



3.2.2 Factor Cost Indices

The method adopted in the construction of these indices, centrally involved the development of an index for a few key materials from 1979 to 1984, using 1981 as the Base year to ensure that the base year is not taken far from the current time at which the indices are desired. An average index for materials is developed by taking an average of the indices developed for the selected key materials. This average index is carried forward for the development of the overall building index. This index was weighted with the proportion of materials to overall building cost, that has been shown earlier as being 65% of the total building cost.

The same procedure is then applied to labour in spite of it being constant with only a few changes at long intervals. The weighting applied to labour on the overall building cost is 30% of the total cost.

The use of plant has been known to be almost constant, though the cost of using the same cannot be constant. However, judging from the schedules of hire rates published by the Nigerian Federation of Building and Civil Engineering Contractors, the rates have remained constant for a long period of time (about 8 years). Coupled with the little use of plant in construction that contributed to plant's very low weight on the overall cost, cost of plant has in this exercise been considered constant.

Table 1 MATERIALS BASIC PRICES ₦

MATERIALS	1979	1980	1981	1982	1983	1984
Cement	100/tonne	100/tonne	126/tonne	140/tonne	120/tonne	150/tonne
Sand	5.00/m^3	6/m^3	7/m^3	7/m^3	8.7/m^3	5.76/m^3
Aggregate	19.00/m^3	20/m^3	25/m^3	28/m^3	31/m^3	22.9/m^3
Mild Steel Rft. bars	520/tonne	480/tonne	560/tonne	550/tonne	600/tonne	900/tonne
High Tensil Steel Rft. bars	530/tonne	520/tonne	580/tonne	560/tonne	610/tonne	910/tonne
B.R.C. Mesh	150/roll	150/roll	165/roll	165/roll	170/roll	170/roll
Carcasing Timber	144/m^3	144/m^3	280/m^3	280/m^3	222/m^3	222/m^3
Joinery Timber	198/m^3	198/m^3	342/m^3	350/m^3	330/m^3	320/m^3
Structural steel Work	950/tonne	1,100/tonne	980/tonne	980/tonne	980/tonne	1,900/tonne

Source: A.B.U. Estate Department - Tender Submissions.

MATERIALS INDICES

BASE YEAR 1981 - INDEX 100

1982

1. Cement = $100 + 100\left(\frac{140 - 126}{126}\right) = 111.11$

2. Sand = $100 + 100\left(\frac{7-7}{7}\right) = 100.00$

3. Aggregate = $100 + 100\left(\frac{25 - 20}{20}\right) = 125.00$

4. Mild steel bars = $100 + 100\left(\frac{550-560}{560}\right) = 98.21$

5. High tensile steel Raft bars = $100 + 100\left(\frac{560-580}{580}\right) = 96.55$

6. B.R.C. mesh = $100 + 100\left(\frac{165 - 165}{165}\right) = 100.00$ =

7. Carcassing timber = $100 + 100\left(\frac{280 - 280}{280}\right) = 100.00$

8. Joinery timber = $100 + 100\left(\frac{350 - 342}{342}\right) = 102.34$

9. Structural Steel Work = $100 + 100\left(\frac{980 - 980}{980}\right) = 100.00$

9/933.21

Average Index = 103.69

1983

Cement	=	$100 + 100\left(\frac{120 - 126}{126}\right)$	=	95.24
Sand	=	$100 + 100\left(\frac{8.7 - 7.0}{7.00}\right)$	=	124.29
Aggregate	=	$100 + 100\left(\frac{31 - 25}{25}\right)$	=	124.00
Mild steel Reinforcement	=	$100 + 100\left(\frac{600 - 560}{560}\right)$	=	107.14
High tensile steel Rft bars	=	$100 + 100\left(\frac{610 - 580}{580}\right)$	=	105.17
B.R.C. Mesh	=	$100 + 100\left(\frac{170 - 165}{165}\right)$	=	103.03
Carcassing timber	=	$100 + 100\left(\frac{22 - 280}{280}\right)$	=	79.29
Joinery timber	=	$100 + 100\left(\frac{330 - 342}{342}\right)$	=	96.49
Structural Steelwork	=	$100 + 100\left(\frac{980 - 980}{980}\right)$	=	100.00
				9/934.65

Average Index 103.85

1984

Cement = $100 + 100\left(\frac{150 - 126}{126}\right) = 119.05$

Sand = $100 + 100\left(\frac{5.76 - 7}{}\right) = 82.29$

Aggregate = $100 + 100\left(\frac{22.9 - 25}{25}\right) = 91.60$

Mild steel Reinforcement = $100 + 100\left(\frac{900 - 560}{560}\right) = 160.71$

High tensile steel Rft = $100 + 100\left(\frac{910 - 560}{580}\right) = 186.90$

B.R.C. Mesh = $100 + 100\left(\frac{120 - 165}{165}\right) = 103.03$

Carcassing timber = $100 + 100\left(\frac{222 - 280}{280}\right) = 29.29$

Joinery timber = $100 + 100\left(\frac{320 - 342}{980}\right) = 193.88$

9/1080.32

Average Index = 120.04

Table 2 BASIC LABOUR RATES

Year / Labour Class	1974	75	76	71	78	79	80	81	82	83	84
Unskilled	1.75	1.75	2.30	2.30	2.30	2.30	4.61	4.61	5.76	5.76	5.76
Semi-skilled	2.56	2.56	3.30	3.30	3.30	3.30	4.75	4.75	5.88	5.88	5.88
Skilled	2.88	2.88	3.80	3.80	3.80	3.80	4.94	4.94	6.04	6.04	6.04

Source : Federation of Building and Civil Engineering Contractors

LABOUR INDICES

BASE YEAR 1975 - INDEX 100

1976 - 1979

1. Unskilled = $100 + 100\left(\frac{2.30 - 1.75}{2.30}\right)$ = 123.91

2. Semi-skilled = $100 + 100\left(\frac{3.30 - 2.56}{3.30}\right)$ = 122.42

3. Skilled = $100 + 100\left(\frac{3.80 - 2.88}{3.80}\right)$ = 124.21

Labour class	Weight	Weighted Index
1. Unskilled	75	9293.25
2. Semi-skilled	20	2448.40
3. Skilled	5	621.05
		12362.7 ÷ 100

Average weighted Index = 123.63

1980 - 1981

1. Unskilled = $100 + 100\left(\frac{4.61 - 1.75}{1.75}\right)$ = 263.43

2. Semi-skilled = $100 + 100\left(\frac{4.75 - 2.56}{2.56}\right)$ = 185.55

3. Skilled = $100 + 100\left(\frac{4.94 - 2.88}{2.88}\right)$ = 171.83

Labour Class	Weight	Weighted Index
1. Unskilled	75	19757.25
2. Semi-skilled	20	3711.00
3. Skilled	5	857.65
		24,325.90 ÷ 100

Average weighted Index = 243.26

1982 - 1984

1. Unskilled = $100 + 100\left(\frac{5.76 - 1.75}{1.75}\right)$ = 329.14

2. Semi-skilled = $100 + 100\left(\frac{5.88 - 2.56}{2.80}\right)$ = 229.69

3. Skilled = $100 + 100\left(\frac{6.04 - 2.80}{2.80}\right)$ = 215.71

Labour class	Weight	Weighted Index
1. Unskilled	75	24,685.50
2. Semi skilled	20	4,593.80
3. Skilled	5	1,078.55
		30,357.85 ÷ 100

Average weighted Index = 303.58

BASE YEAR 1981 - INDEX = 100

1984

1. Unskilled = $100 + 100\left(\frac{5.76 - 4.61}{4.61}\right)$ = 124.95

2. Semi-skilled = $100 + 100\left(\frac{5.88 - 4.75}{4.75}\right)$ = 123.79

3. Skilled = $100 + 100\left(\frac{6.04 - 4.94}{4.94}\right)$ = 122.27

Labour Class		weight	Weighted Index
1.	Unskilled	75	9371.25
2.	Semi skilled	20	2475.80
3.	Skilled	5	611.35
			12458.40 ÷ 100
	Average weighted Index	=	124.58

BASE YEAR = 1981 - INDEX 100

Resource Constant	Index	Weight	Weighted Index
1. Material	120.04	65	7802.60
2. Labour	124.58	30	3737.40
3. Plant	100	5	500.00
			12040 ÷ 100

Average weighted Index = 120.40

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

4.1.0 Observations and conclusions:

The purpose of this work is mainly to develop tender based and factor cost indices for use in Budgetting and fluctuations Adjustments respectively, this came out to be a self concluding exercise. However certain observations have been made in regard to both the data collection process and construction of the indices. These observations need to be enumerated such that further Research and Development in this field could be made a lot easier. Some of these observations and conclusions are as follows:

i. Disparity in the nature of the Tender Bills of Quantities analysed could lead to a very high rate of change hence a higher index than normal. Care should be taken to see that all Bills of Quantities analysed for this purpose, are similar in both Bills structure and nature of Project. This was observed from the sharper increase in the tender total price of the Faculty of Human Medicine project from 1974 to 1975 (rose by more than 100%). This is because most of the rates used were got from the average of rates from Tender Bills of different nature.

Despite the Disparities mentioned in (i), an interesting result was achieved (see graphs), which means that a further research with more reliable data could result into a more interesting finding, showing that, the development of indices for use in the Nigerian Construction Industry is very possible.

iii. Despite budget freezes at certain intervals, there was always an increase in Construction Costs and never a decrease (see graphs there of), obeying the famous law in Practical Economics - "Never a Deflation but Inflation".

iv. Rates of labour have been fairly constant as there were only two changes in the last nine to ten years.

v. Due to excessive control on plant hire rates by contractors associations, cost of plant was found to be constant.

vi. With (iv) and (v) and weightings on the overall cost of construction, increases in construction cost, very much depend on prices of building materials. Giving rise to to the conclusion that with the development of an index for materials prices alone, construction cost increases could be adequately controlled, and any price fluctuations incurred by a contractor effectively reimbursed.

vii. Indices could be developed for various regions of the country, and to check the performance of any regional index, a national average will have to be developed. This will be an average of the many regional indices developed.

4.2.0 Areas of further Development

With the interesting findings of this piece of work, it has now become a big challenge to the Author and other professional members of Nigeria's construction industry to develop a set of national indices, that will control the absurdity that prevails while making ajustments for fluctuations in construction contracts. Also to remove the stigma attached to the construction industry, as a result of the unscrupulus acts of few of its members. The challenge is for us all!!!

BIBLIOGRAPHY AND REFERENCES

1. A. ASHWORTH, Cost Modelling for the Construction Industry IQS Journal, July 1981

2. D.H. EDMEADS, Building Economincs and Measurement.

3. DQSS, Quarterly building Prices and Costs: RICS Journal, May, 1982

4. DQSS, Quarterly building Prices and Costs: RICS Journal, February 1983

5. DQSS, Quarterly Building Prices and Costs: RICS Journal August, 1983

6. DQSS, Quarterly Building Prices and Costs: RICS Journal May, 1984

7. DQSS, Quarterly Building Prices and Costs: RICS Journal August 1984

8. E.R. SKOYLESS, Prices or Cost: IQS Journal, April, 1977

9. I.H. SEELEY, Building Economics: 2nd Edition (1976)

10. JCT Standard forms of building Contracts 1963 Edition Revised 1977

11. JCT Standard forms of building Contracts 1980 Edition.

12. J. MARTINS Construction in figures, RICS Journal July, 1983

13. J. SOUTHWELL Building Cost forecasting: (RICS 1981)

14. K.A. WAHAB Building Materials Prices in selected locations in Nigeria: IQS Journal February 1977

15. NEDO Price Adjustment Formulae for Civil Engineering Contracts (1973)

16. NEDO Price Adjustment Formulae for Building Contracts:

17. P.BRANDON AND D.J. FERRY Cost planning of Buildings: 4th Edition (1980)

18. P.C. AGBAROJI Price Data and Regional Variations in Construction Industry: NIQS Journal January, 1981.

19. P.E. BATHURST
AND D.A. BUTLER Building Cost Control Techniques and Economics: (1977)

20. P. GOODACRE Formula Method of Price Adjustment for Building Contracts: (Jan 1978)

21. P. HIBBERT The Case for Analytical Bills: RICS Journal October, 1982

22. R.E. WALPOLE, Introduction to Statistics: 2nd Edition (1974)

23. T. C. MOGBO Some Pricing Problems of Nigerian Building Contractors: February 1979.

QUARTERLY BUILDING PRICES AND COSTS: 19

1. The QSSD index of building tender prices

The "all in" index is based on the rates in bills of quantities for accepted PSA tenders over £40 000 excluding housing, civil engineer mechanical, electrical and alteration works projects.

QTR	1975=100 All-in	FP	VOP	QTR	1975=100 All-in	FP	VOP	QTR	1975=100 All-in	SE	change in all-in index since previous quarter	FP	VOP	QTR	1975=100 All-in	SE	change in all-in index since previous quarter	1975=1 FP	VC
1Q76	102	102	102	1Q78	124	127	121	1Q80	199		NIL	207	185	1Q82	198	5	+4%	209	18
2Q76	105	103	105	2Q78	130	133	127	2Q80	206R		+4%R	219R	185R	2Q82	197	5	NIL	206	18
3Q76	109	109	109	3Q78	140	143	136	3Q80	213	9	+3%	221	200	3Q82	194	3	−2%	204	18
4Q76	108	108	107	4Q78	148	153	143	4Q80	206	9	−3%	219	190	4Q82	192	5	−1%	202	18
1Q77	111	113	108	1Q79	157	164	149	1Q81	193	9	−6%	210	177	1Q83	200	4	+4%	213	19
2Q77	118	121	115	2Q79	166	172	159	2Q81	191	5	−1%	208	176	2Q83	190	4	−5%	205	18
3Q77	119	123	116	3Q79	181	184	175	3Q81	193	8	+1%	211	177	3Q83	194	3	+2%	207	18
4Q77	127	130	122	4Q79	199	205	189	4Q81	190	5	−2%	208	174	4Q83	194	3	NIL	206	18
														1Q84	196	6	+1%	210	18
														2Q84	197*	–	+0.5%	213*	18

F = forecast R = revised
SE = standard error * = provisional

2. Measured term contracts index

This index shows the movement in the cost of ordering B&CE work on measured term contracts for all contracts current at the quarter indicated, taking account of updating percentage adjustment and contractor's tendered percentages.

Base 1980 schedule of rates for building works = 100

Date	1981	1982	1983	1984
Q1	93	100	103	106
Q2	94	102	104	—
Q3	97	105	108	—
Q4	99	105	107	—

3. Average PSA building costs index (APSAB) measured by application of the price adjustment formula for building contracts (seri 2).

Base 1975 = 100	Building	H & V and air cond	Electrical	Combined index	Derived building materials only	Base 1975 = 100	Building	H & V and air cond	Electrical	Combined index	Derived buildi materials o
WEIGHTING	(87%)	(8%)	(5%)	(100%)		WEIGHTING	(87%)	(8%)	(5%)	(100%)	
1980 Q1	191	201	198	192	204	1983 Q1	254	257	271	255	259
Q2	198	208	207	199	215	Q2	260	264	286	262	267
Q3	216	210	215	215	221	Q3	268	270	287	270	271
Q4	218	214	232	218	222	Q4	270	272	292	271	275
1981 Q1	219	224	236	221	225	Oct	270	272	288	271	274
Q2	224	231	238	225	231	Nov	270	271	294	271	275
Q3	230	234	240	231	234	Dec	271	272	295	272	276
Q4	236	236	242	236	238						
1982 Q1	240	247	245	241	246		(75%)	(15%)	(10%)	(100%)	
Q2	245	252	268	247	250	1984 Jan	272	273	296	275	278*
Q3	251	253	269	252	253	Feb	273*	273*	297*	274*	278*
Q4	254	254	271	255	257	Mar	273*	274*	298*	274*	281*
						Apr	275*	281*	299*	278*	283*

NOTE: weightings revised with effect from January 1984 * = provisiona

4. Measured term contracts – updating percentages

Updating percentages to be applied to the schedules of rates in accordance with the conditions of contract.

Sched	B&CE	Dec	Land	Roads		Elect inst				Elect dist			H&V
Items	all	all	all	black top	rest	rates A	rates B	sect 4	copper cable	rates A	rates B	rates C	all
Base	**1973**	**1973**	**1973**	**1973**			**1976**				**1976**		**1973**
1983													
Nov	288.5	305.5	306.0	494.9	310.6	212.1	317.4	243.7	133.4	178.9	317.4	209.6	330.2
Dec	288.3	305.4	304.9	491.7	309.6	212.7	317.4	243.9	135.7	180.9	317.4	209.0	329.7
1984													
Jan	289.3	306.0	304.9	493.3	309.8	215.2	318.1	245.3	138.4	184.7	318.1	209.0	332.7
Feb	289.6	306.0	305.4	494.9	311.3	215.9	318.1	245.3	139.6	185.9	318.1	209.3	333.8
Mar	291.6	307.3	306.5	507.3	314.0	217.0	318.1	254.8	141.7	188.0	318.1	211.3	334.0
Apr	293.4	307.6	306.5	523.1	314.9	218.0	318.1	247.1	144.3	189.4	318.1	211.3	346.4
May	295.3	307.7	307.1	527.0	318.2	222.4	318.1	249.6	143.1	192.3	318.1	211.6	342.7
Base	**1980**	**1980**	**1981**	**1980**									
1983													
Nov	26.9	25.5	22.3	43.5	28.1								
Dec	27.0	25.4	22.0	42.7	27.8								
1984													
Jan	27.3	25.6	22.0	43.2	27.9								
Feb	27.3	25.6	22.1	43.5	28.1								
Mar	28.0	25.9	22.4	46.8	28.6								
Apr	28.8	26.0	22.4	50.9	28.8								
May	29.3	26.0	22.5	52.0	29.4								

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QUARTERLY BUILDING PRICES AND COSTS: 18

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The "all in" index is based on the rates in bills of quantities for accepted PSA tenders over £40 000 excluding housing, civil engineering mechanical, electrical and alteration works projects.

QTR	1975=100 All-in	FP	VOP	QTR	1975=100 All-in	FP	VOP	QTR	1975=100 All-in	SE	change in all-in index since previous quarter	FP	VOP	QTR	1975=100 All-in	SE	change in all-in index since previous quarter	FP	VOP
1Q76	102	102	102	1Q78	124	127	121	1Q80	199		NIL	207	185	1Q82	198	5	+4%	209	187
2Q76	105	103	105	2Q78	130	133	127	2Q80	206R		+4%R	219R	185R	2Q82	197	5	NIL	206	188
3Q76	109	109	109	3Q78	140	143	136	3Q80	213	9	+3%	221	200	3Q82	194	3	−2%	204	185
4Q76	108	108	107	4Q78	148	153	143	4Q80	206	9	−3%	219	190	4Q82	192	5	−1%	202	185
1Q77	111	113	108	1Q79	157	164	149	1Q81	193	9	−6%	210	177	1Q83	200	4	+4%	213	190
2Q77	118	121	115	2Q79	166	172	159	2Q81	191	5	−1%	208	176	2Q83	190	4	−5%	205	181
3Q77	119	123	116	3Q79	181	184	175	3Q81	193	8	+1%	211	177	3Q83	194*	3	+2%	207	185
4Q77	127	130	122	4Q79	199	205	189	4Q81	190	5	−2%	208	174	4Q83	194*	3	NIL	206	185
														1Q84	199*	–	+2.5%	212*	190*

F = forecast R = revised
SE = standard error * = provisional

2. Measured term contracts index

This index shows the movement in the cost of ordering B&CE work on measured term contracts for all contracts current at the quarter indicated, taking account of addenda A, primary and secondary percentages.

Base: 1973 schedule of rates for building works = 100

Date	1977	1978	1979	1980	1981	1982	1983
Q1	168	176	202	244	284	308	316
Q2	169	178	207	248	285	305	319
Q3	176	191	233	279	299	323	330
Q4	176	196	239	280	305	321	327

3. Average PSA building costs index (APSAB) measured by application of the price adjustment formula for building contracts (series 2).

Base 1975 = 100	Building	H & V and air cond	Electrical	Combined index	Derived building materials only	Base 1975 = 100	Building	H & V and air cond	Electrical	Combined index	Derived buildin materials on
WEIGHTING	(87%)	(8%)	(5%)	(100%)		WEIGHTING	(87%)	(8%)	(5%)	(100%)	
1978 Q1	144	139	147	144	154	1981 Q1	219	224	236	221	225
Q2	147	141	150	147	158	Q2	224	231	238	225	231
Q3	154	143	151	153	161	Q3	230	234	240	233	233
Q4	157	153	155	156	165	Q4	236	236	242	236	238
1979 Q1	160	160	168	160	170	1982 Q1	240	247	245	241	246
Q2	164	163	171	164	178	Q2	245	252	268	247	250
Q3	180	177	176	180	189	Q3	251	253	269	252	253
Q4	186	186	183	186	196	Q4	254	254	271	255	257
1980 Q1	191	201	198	192	204	1983 July	267	265	288	268	270
Q2	198	208	207	199	215	Sep	269*	273*	288*	270*	273
Q3	216	210	215	215	221	Oct	270	272*	288*	271	273*
Q4	218	214	232	218	222	Nov	270*	272*	288*	271*	274*
						Dec	270*	272*	289*	271*	275*
						1984 Jan	271*	273*	291*	272*	278*

* = provisiona

4. Measured term contracts – updating percentages

Updating percentages to be applied to the schedules of rates in accordance with the conditions of contract.

Sched	B&CE	Dec	Land	Roads		Elect inst			Elect dist				H&V
Items	all	all	all	black top	rest	rates A	rates B	sect 4	copper cable	rates A	rates B	rates C	all
Base	**1973**	**1973**	**1973**	**1973**			**1976**				**1976**		**1973**
1983													
Aug	286.8	303.2	292.6	493.1	308.7	208.1	317.4	242.3	136.1	178.2	317.4	208.4	330.0
Sep	287.1	304.4	306.5	495.1	309.4	209.9	317.4	242.3	134.6	177.8	317.4	208.7	331.0
Oct	288.5	305.4	307.1	494.2	311.4	211.9	317.4	242.0	134.6	177.7	317.4	210.2	330.0
Nov	288.5	305.5	306.0	494.9	310.6	212.1	317.4	243.7	133.4	178.3	317.4	209.6	330.2
Dec	288.3	305.4	304.9	491.7	309.6	212.7	317.4	243.9	135.7	180.9	317.4	209.0	329.7
1984													
Jan	289.3	306.0	304.9	493.3	309.8	215.2	318.1	245.3	138.4	184.7	318.1	209.0	332.7
Feb	289.6	306.0	305.4	494.9	311.3	215.9	318.1	245.3	139.6	185.9	318.1	209.3	333.8
Base	**1980**	**1980**	**1981**	**1980**									
1983													
Aug	26.5	24.9	21.8	43.0	27.5								
Sep	26.6	25.2	22.0	43.5	27.6								
Oct	27.0	25.5	22.5	43.3	28.3								
Nov	26.9	25.5	22.3	43.5	28.1								
Dec	27.0	25.4	22.0	42.7	27.8								
1984													
Jan	27.3	25.6	22.0	43.2	27.9								
Feb	27.3	25.6	22.1	43.5	28.1								

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Construction in figures

Joe Martin of the Building Cost Information Service presents a statistical summary of the state of the building industry

The BIA/BCIS House Rebuilding Cost Index is prepared by the Building Cost Information Service of the Royal Institution of Chartered Surveyors for the British Insurance Association. The index is intended to update the house-rebuilding cost figures prepared by BCIS (and published in its *Guide to house rebuilding costs for insurance valuation*), in the BIA's leaflet *Buildings insurance for home owners* and by various insurance companies in their renewal notices.

The index

The index is based on the changes in the rebuilding costs for a range of houses of differing types, ages, sizes and qualities. The rebuilding costs are recalculated each month (based on costs current on the third Wednesday of the month and will be circulated to subscribers during the first week of the following month. Prior to September 1982 the index monitored the rebuilding cost of a modern, small, basic quality semi-detached house.

1 Tender prices and building costs

1Q83 % change (BCIS Indices)	compared with 4Q82	compared with 1Q82
Tender price	+1.9	−1.4
General building cost	+0.9	+6.5
Steel-framed construction cost	+0.9	+6.1
Concrete framed construction cost	+0.6	+6.1
Brick construction cost	+0.9	+6.5

2 Construction material prices

(DoE/DoI Index)	1Q83 % change compared with 4Q82	1Q82
New housing	+1.2	+6.6
Other new work	+0.9	+4.9
Repair and maintenance	+1.5	+4.2
All work	+1.2	+6.5

3 Average earnings

(DEmp Index)	1Q83 % change compared with 4Q82	1Q82
Construction	NC	+6.9
All industries	+0.5	+7.1

4 Construction new orders

(DoE, 1975 prices seasonally adjusted)	1Q83 % change compared 4Q82	1Q82
Housing:		
public:	−3.8	−0.1
private:	−28.8	+43.8
Public other work:	+1.7	+5.1
Private		
industrial:	+24.2	+10.8
commercial:	−11.3	−6.9
Total new work	+6.1	+10.1

5 Construction output

(DoE, 1975 prices seasonally adjusted)	1Q83 % change compared with 4Q82	1Q82
New housing		
public:	+6.0	+8.4
private:	+3.3	+35.4
Public other work:	−1.3	−1.3
Private		
industrial:	−9.4	−18.8
commercial:	−4.5	+0.3
New work	−1.5	+4.2
Repair and maintenance	−1.0	+3.6
All work	−1.3	+3.9

6 Construction output forecasts

(1975 constant prices)	1983	% change 1984	1985
Public housing			
NEDO	+17	+16	
BMP	+14	+3.5	+1
Private housing			
NEDO	+16	+3	
BMP	+19	+3	−2.5
Public works			
NEDO	+1	+2	
BMP		NC	+2
Private industrial			
NEDO	−3	+2	
BMP	−4	+4	+6
Private commercial			
NEDO	−4	−6	
BMP	−5	−5	+4
Repair and maintenance			
NEDO	+4	+3	
BMP	+6	+2.5	NC
Total			
NEDO	+4	+2	
BMP	+4	+1.5	+1

Source:
National Economic Development Office December 1982
Building Material Producers April 1983

7 BIA/BCIS house rebuilding cost index

1978 = 100

House rebuilding cost index	1Q83 % change compared with 4Q82: +0.9	1Q82: +7.4
	1978	1981	1982	1983
January	—	145.9	151.8	163.1
February	—	146.2	152.7	163.4
March	—	146.8	152.9	164.5
April	—	146.8	153.9	165.4
May	—	148.4	155.7	165.8
June	—	148.8	155.7	
July	100.00	150.3	160.8	
August	—	149.3	160.8	
September	102.1	149.3	*161.5	
October	—	150.2	161.7	
November	—	150.8	162.3	
December	105.0	150.9	162.5	

* rebased September 1982

8 QS workload

(RICS index)	% of respondents replying in March 1983 more	same	less
Total work in hand			
Housing – private:	27	42	31
– public:	19	46	35
Other public:			
Private – industrial:	28	39	33
– commercial:	18	52	30
Total	24	51	25
BQ commissions			
Housing – private:	25	34	41
– public:	28	45	27
Other public:	24	44	32
Private – industrial:	19	46	35
– commercial:	19	50	31
Total:	24	43	33

9 Retail prices

(DEmp index)	% change compared with 4Q82	1Q82
All items		
+0.5		
+5.0		
All items except food	+0.3	+5.5
Durable houshold goods	+0.4	+2.7

All items latest figures
Jan 1974 = 100.0
Nov 1982 = 326.1
Dec 1982 = 325.5
Jan 1983 = 325.9
Feb 1983 = 327.3
Mar 1983 = 327.9
Apr 1983 = 332.5

10 Architects' workload

RIBA, 1975 prices	4Q82 % change compared with 3Q82	4Q81
New commissions		
Housing		
private:	−2.7	+14.4
public:	+28.6	+109.6
Other buildings		
private:	+9.4	+1.3
public:	+12.5	+36.1
Total	+1.0	+17.1
Work entering production (drawing stage)		
Housing		
private:	+24.5	−22.4
public:	+33.0	+7.3
Other building		
private:	−5.8	−14.7
public:	−10.0	−18.2

11 Building materials sales

(BMF, constant prices)	% change Jan 83 compared with Jan 82	Jan 82-Jan 83 compared with Jan 81-Jan 82
Region:		
Northern:	+5.9	+7.1
Yorks and Humber:	−6.9	−0.1
East Midlands:	−0.2	+5.7
East Anglia:	+2.0	+1.7
South East:	+4.9	+4.5
South West:	+3.2	+5.1
West Midlands:	+19.0	+11.1
North West:	−13.6	−0.8
Wales:	+5.2	−6.8
Scotland:	+10.8	−2.2
Total, GB:	+4.1	+3.5

The statistics are compiled by the Building Cost Information Service.

1. The DQSS index of building tender prices
The "all in" index is based on the rates in bills of quantities for accepted PSA tenders over £40 000 excluding housing, civil engineering, mechanical, electrical and alteration works projects.

QTR	1975 = 100 All-in	FP	VOP	QTR	1975 = 100 All-in	FP	VOR	QTR	1975 = 100 All-in	SE	change in all-in index since previous quarter	1975 = 100 FP	VOP	QTR	1975 = 100 All-in	SE	change in all-in index since previous quarter	1975 = 100 FP	VOP
1Q75	100	101	99	1Q77	111	113	108	1Q79	157		+ 6%	164	149	1Q81	193	9	−6%	210	177
2Q75				2Q77	118	121	115	2Q79	166		+ 6%	172	159	2Q81	191	5	−1%	208	176
3Q75				3Q77	119	123	116	3Q79	181		+ 9%	184	175	3Q81	193	8	+1%	211	177
4Q75				4Q77	127	130	122	4Q79	199		+10%	205	189	4Q81	190	5	−2%	208	174
1Q76	102	102	102	1Q78	124	127	121	1Q80	199		NIL	207	185	1Q82	190*		NIL	208*	174*
2Q76	105	103	105	2Q78	130	133	127	2Q80	206R		+4%R	219R	185R						
3Q76	109	109	109	3Q78	140	143	136	3Q80	213	9	+3%	221	200						
4Q76	108	108	107	4Q78	148	153	143	4Q80	206	9	−3%	219	190						

R = revised SE = standard error * = provisional

2. Measured term contracts index
This index shows the movement in the cost of ordering *B&CE work on measured term contracts for all contracts* current at the quarter indicated, taking account of addenda A, primary and secondary percentages.

Base: 1973 schedule of rates for building works = 100

Date	1975	1976	1977	1978	1979	1980	1981
Q1	131	151	168	176	202	244	284
Q2	137	156	169	178	207	248	285
Q3	142	163	176	191	233	279	299
Q4	150	164	176	196	239	280	305

3. Average PSA building costs index (APSAB) measured by application of the price adjustment formula for building contracts (series 2).

Base 1975 = 100	Building	H & V and air cond	Electrical	Combined index	Derived building materials only	Base 1975 = 100	Building	H & V and air cond	Electrical	Combined index	Derived building materials only
WEIGHTING	(87%)	8%)	(5%)	(100%)		WEIGHTING	(87%)	(8%)	(5%)	(100%)	
1978 Q1	144	139	147	144	154	1981 Q1	219	224	236	221	225
Q2	147	141	150	147	158	Q2	224	231	238	225	231
Q3	154	143	151	153	161	Q3	230	234	240	233	233
Q4	157	153	155	156	165	Q4					
1979 Q1	160	160	168	160	170	1981 July	225	233	240	226	233
Q2	164	163	171	164	178	Aug	232	234	240	233	233
Q3	180	177	176	180	189	Sept	232	234	241	233	235
Q4	186	186	183	186	196	Oct	233	235	241	234	236*
1980 Q1	191	201	198	192	204	Nov	236*	236*	242*	236*	237*
Q2	198	208	207	199	215	Dec	237*	238*	243*	237*	239*
Q3	216	210	215	215	221	1982 Jan	238*	239*	244*	238*	242*
Q4	218	214	232	218	222	Feb	239*				

* = provisional

4. Measured term contracts — updating percentages
Updating percentages to be applied to the schedules of rates in accordance with the conditions of contract.

Sched	B&CE	Dec	G M	Roads		Elect inst 76			Elec dist 76				H&V 73
Items	all	all	all	black top	rest	rates A	rates B	sect 4	copper cable	rates A	rates B	rates C	all
Base	1973	197	1973	1973		1974					974		1974
1981													
Jul	234.9	249.5	234.9	392.8	248.8	160.6	241.9	175.7	100.3	134.1	241.9	164.8	270.0
Aug	235.9	249.4	239.1	395.5	252.4	161.7	241.9	177.2	103.5	136.2	241.9	167.2	271.8
Sept	236.0	252.1	239.8	398.5	253.0	161.9	241.9	177.5	98.9	137.3	241.9	166.7	272.9
Oct	237.5	253.1	240.8	402.7	255.9	165.9	241.9	179.0	104.9	137.5	241.9	168.0	274.8
	243.6	260.6	241.9	407.5	261.4	169.7	242.2	181.4	102.7	139.2	242.2	173.6	277.2
	243.8	260.7	243.6	408.2	263.8	171.0	242.6	183.0	102.8	140.3	242.6	174.6	277.9
Jan	245.2	261.8	267.1	409.6	265.3	171.7	242.6	183.0	102.4	142.7	242.6	174.9	283.7
Feb	246.1	261.8	267.7	418.6	267.4	180.7	242.6	185.6	109.2	144.2	242.6	174.9	302.8
Base	1980	198	1981	1980									
1981													
Jul	9.2	8.2	0.8	18.6	9.5								
Aug	9.5	8.2	1.8	19.1	10.6								
Sept	9.6	8.9	2.0	19.8	10.7								
Oct	10.0	9.2	2.2	20.9	11.5								
Nov	12.0	11.6	2.5	21.9	13.4								
Dec	12.2	11.7	2.9	22.0	14.0								
1982													
Jan	12.6	12.0	10.6	22.3	15.0								
Feb	12.8	12.0	10.8	24.7	15.3								

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QUARTERLY BUILDING PRICES AND COSTS: 20

1. The QSSD index of building tender prices

This index is based on the rates in bills of quantities for accepted PSA tenders over £40 000 excluding housing, civil engineering, mechanical, electrical and alteration works projects.

QTR	1975=100 All-in	FP	VOP	QTR	1975=100 All-in	FP	VOP	QTR	1975=100 All-in	SE	change in all-in index since previous quarter	1975=100 FP	VOP	QTR	1975=100 All-in	SE	change in all-in index since previous quarter	1975=100 FP	VOP
1Q76	102	102	102	1Q78	124	127	121	1Q80	199		NIL	207	185	1Q82	198	5	+4%	209	187
2Q76	105	103	105	2Q78	130	133	127	2Q80	206R		+4%R	219R	1:5R	2S821;5	2	OIN	206	188	
3Q76	109	109	109	3Q78	140	143	136	3Q80	213	9	+3%	221	200	3Q82	194	3	−2%	204	185
4Q76	108	108	107	4Q78	148	153	143	4Q80	206	9	−3%	219	190	4Q82	192	5	−1%	202	185
1Q77	111	113	108	1Q79	157	164	149	1Q81	193	9	−6%	210	177	1Q83	200	4	+4%	213	190
2Q77	118	121	115	2Q79	166	172	159	2Q81	191	5	−1%	208	176	2Q83	190	4	−5%	205	181
3Q77	119	123	116	3Q79	181	184	175	3Q81	193	8	+1%	211	177	3Q83	194	3	+2%	207	185
4Q77	127	130	122	4Q79	199	205	189	4Q81	190	5	−2%	208	174	4Q83	194	3	NIL	206	185
														1Q83	196	6	+1%	210	186
														2Q84	204	5	+4%	214	195
														3Q84	206*	—	+1%	216*	198

SE = standard error R = revised
* = provisional

2. Measured term contracts index

This index shows the movement in the cost of ordering B&CE work on measured term contracts for all contracts current at the quarter indicated, taking account of updating percentage adjustment and contractor's tendered percentages.

Base: 1980 schedule of rates for building works = 100

Date	1981	1982	1983	1984
Q1	93	100	103	106
Q2	94	102	103	107
Q3	97	105	10[illegible]	—
Q4	99	105	10[illegible]	—

3. Average PSA building costs index (APSAB) measured by application of the price adjustment formula for building contract (series 2).

Base 1975=100	Building	H & V and air cond	Electrical	Combined index	Derived building materials only	Base 1975=100	Building	H & V and air cond	Electrical	Combined index	Derived buildin materials only
WEIGHTING	(87%)	(8%)	(5%)	(100%)		WEIGHTING	(87%)	(8%)	(5%)	(100%)	
1980 Q1	191	201	198	192	204	1983 Q1	254	257	271	255	259
Q2	198	208	207	199	215	Q2	260	264	288R	262	267
Q3	216	210	215	215	221	Q3	268	269R	292R	269R	271
Q4	218	214	232	218	222	Q4	270	271R	294R	271	275
1981 Q1	219	224	236	221	225		(75%)	(15%)	(10%)	(100%)	
Q2	224	231	238	225	231	1984 Jan	272	273	296	275	278
Q3	230	234	240	231	234	Feb	273	273	297	275	283
Q4	236	236	242	236	238	Mar	273	273	298	276	281
1982 Q1	240	247	245	241	236	Apr	275	280	299	278	283*
Q2	245	252	268	247	240	May	276*	280*	300*	279*	287*
Q3	251	253	269	252	253	June	278*	280*	301*	281*	290*
Q4	254	254	271	255	257	July	285*	281*	305*	286*	289*

R = revised * = provisional NOTE: weightings revised with effect from January 1984

4. Measured term contracts – updating percentages

Updating percentages to be applied to the schedules of rates in accordance with the conditions of contract.

Sched	B&CE	Dec	Land	Roads		Elect inst				Elect dist		H&V
Items	all	all	all	black top	rest	rates A	rates B	sect 4	copper cable	rates B	rates C	all
Base	**1973**	**1973**	**1973**	**1973**		**1976**				**1976**		**1973**
1984												
Jan	289.3	306.0	304.9	493.3	309.8	215.2	318.1	245.3	138.4	318.1	209.0	332.7
Feb	289.6	306.0	305.4	494.9	311.3	215.9	318.1	245.3	139.6	318.1	209.3	333.8
Mar	291.6	307.3	306.5	507.3	314.0	217.0	318.1	254.8	141.7	318.1	211.3	334.0
Apr	293.4	307.6	306.5	523.1	314.9	218.0	318.1	247.1	144.3	318.1	211.3	346.4
May	295.3	307.7	307.1	527.0	318.2	222.4	318.1	249.6	143.1	318.1	211.6	342.7
Jun	307.4	323.4	320.3	529.9	328.6	224.4	331.1	256.0	147.3	331.1	223.4	345.4
Jul	308.9	324.7	323.5	531.2	331.4	224.4	331.1	256.4	147.0	331.1	226.0	345.5
Base	**1980**	**1980**	**1981**	**1980**								
1984												
Jan	27.3	25.6	22.0	43.2	27.9							
Feb	27.3	25.6	22.1	43.5	28.1							
Mar	28.0	25.9	22.4	46.8	28.6							
Apr	28.8	26.0	22.4	50.9	28.8							
May	29.3	26.0	22.5	52.0	29.4							
Jun	33.0	31.1	26.8	52.3	32.7							
Jul	33.5	31.5	27.6	52.5	33.7							

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QUARTERLY BUILDING PRICES AND COSTS: 18

1. The QSSD index of building tender prices

The "all in" index is based on the rates in bills of quantities for accepted PSA tenders over £40 000 excluding housing, civil engineering, mechanical, electrical and alteration works projects.

	1975=100				1975=100				1975=100				1975=100				1975=100				1975=100
QTR	All-in	FP	VOP	QTR	All-in	FP	VOP	QTR	All-in	SE	change in all-in index since previous quarter	FP	VOP	QTR	All-in	SE	change in all-in index since previous quarter	FP	VOP
1Q76	102	102	102	1Q78	124	127	121	1Q80	199		NIL	207	185	1Q82	198	5	+4%	209	187
2Q76	105	103	105	2Q78	130	133	127	2Q80	206R		+4%R	219R	185R	2Q82	197	5	NIL	206	188
3Q76	109	109	109	3Q78	140	143	136	3Q80	213	9	+3%	221	200	3Q82	194	3	−2%	204	185
4Q76	108	108	107	4Q78	148	153	143	4Q80	206	9	−3%	219	190	4Q82	192	5	−1%	202	185
1Q77	111	113	108	1Q79	157	164	149	1Q81	193	9	−6%	210	177	1Q83	200	4	+4%	213	190
2Q77	118	121	115	2Q79	166	172	159	2Q81	191	5	−1%	208	176	2Q83	199	4	−5%	205	181
3Q77	119	123	116	3Q79	181	184	175	3Q81	193	8	+1%	211	177	3Q83	194*	3	+2%	207	185
4Q77	127	130	122	4Q79	199	205	189	4Q81	190	5	−2%	208	174	4Q83	194*	3	NIL	206	185
														1Q84	194*	–	+2.5%	212*	190*

F = forecast R = revised
SE = standard error * = provisional

2. Measured term contracts index

This index shows the movement in the cost of ordering B&CE work on measured term contracts for all contracts current at the quarter indicated, taking account of addenda A, primary and secondary percentages.

Base: 1973 schedule of rates for building works = 100

Date	1977	1978	1979	1980	1981	1982	1983
Q1	168	176	202	244	284	308	316
Q2	169	178	207	248	285	305	319
Q3	176	191	233	279	299	323	330
Q4	176	196	239	280	305	321	327

3. Average PSA building costs index (APSAB) measured by application of the price adjustment formula for building contracts (series 2).

Base 1975 = 100	Building	H & V and air cond	Electrical	Combined index	Derived building materials only	Base 1975 = 100	Building	H & V and air cond	Electrical	Combined index	Derived building materials only
WEIGHTING	(87%)	(8%)	(5%)	(100%)		WEIGHTING	(87%)	(8%)	(5%)	(100%)	
1978 Q1	144	139	147	144	154	1981 Q1	219	224	216	221	225
Q2	147	141	150	147	158	Q2	224	231	218	225	231
Q3	154	143	151	153	161	Q3	230	234	210	233	233
Q4	157	153	155	156	165	Q4	236	236	222	236	238
1979 Q1	160	160	168	160	170	1982 Q1	240	247	225	241	246
Q2	164	163	171	164	178	Q2	245	252	228	247	250
Q3	180	177	176	180	189	Q3	251	253	229	252	253
Q4	186	186	183	186	196	Q4	254	254	231	255	257
1980 Q1	191	201	198	192	204	1983 July	267	265	238	268	270
Q2	198	208	207	199	215	Sep	269*	273*	238*	270*	273
Q3	216	210	215	215	221	Oct	270	272*	238*	271	273*
Q4	218	214	232	218	222	Nov	270*	272*	238*	271*	274*
						Dec	270*	272*	239*	271*	275*
						1984 Jan	271*	273*	241*	272*	278*

* = provisional

4. Measured term contracts – updating percentages

Updating percentages to be applied to the schedules of rates in accordance with the conditions of contract.

Sched	B&CE	Dec	Land	Roads		Elect inst				Elect dist			H&V
Items	all	all	all	black top	rest	rates A	rates B	sect 4	copper cable	rates A	rates B	rates C	all
Base	**1973**	**1973**	**1973**	**1973**			**1976**				**1976**		**1973**
1983													
Aug	286.8	303.2	292.6	493.1	308.7	208.1	317.4	242.3	136.1	178.3	317.4	208.4	330.0
Sep	287.1	304.4	306.5	495.1	309.4	209.9	317.4	242.3	134.6	177.3	317.4	208.7	331.0
Oct	288.5	305.4	307.1	494.2	311.4	211.9	317.4	242.0	134.6	177.7	317.4	210.2	330.0
Nov	288.5	305.5	306.0	494.9	310.6	212.1	317.4	243.7	133.4	178.1	317.4	209.6	330.2
Dec	288.3	305.4	304.9	491.7	309.6	212.7	317.4	243.9	135.7	180.1	317.4	209.0	329.7
1984													
Jan	289.3	306.0	304.9	493.3	309.8	215.2	318.1	245.3	138.4	184.1	318.1	209.0	332.7
Feb	289.6	306.0	305.4	494.9	311.3	215.9	318.1	245.3	139.6	185.9	318.1	209.3	333.8
Base	**1980**	**1980**	**1981**	**1980**									
1983													
Aug	26.5	24.9	17.8	43.0	27.5								
Sep	26.6	25.2	22.0	43.5	27.6								
Oct	27.0	25.5	22.5	43.3	28.3								
Nov	26.9	25.5	22.3	43.5	28.1								
Dec	27.0	25.4	22.0	42.7	27.8								
1984													
Jan	27.3	25.6	22.0	43.2	27.9								
Feb	27.3	25.6	22.1	43.5	28.1								

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QUARTERLY BUILDING PRICES AND COSTS: 15

1. The DQSS index of building tender prices

The "all in" index is based on the rates in bills of quantities for accepted PSA tenders over £40 000 excluding housing, civil engineeri mechanical, electrical and alteration works projects.

QTR	1975=100 All-in	FP	VOP	QTR	1975=100 All-in	FP	VOP	QTR	1975=100 All-in	SE	change in all-in index since previous quarter	1975=100 FP	VOP	QTR	1975=100 All-in	SE	change in all-in index since previous quarter	1975=1 FP	VC
1Q75)				1Q77	111	113	108	1Q79	157		+ 6%	164	149	1Q81	193	9	−6%	210	17
2Q75)	100	101	99	2Q77	118	121	115	2Q79	166		+ 6%	172	159	2Q81	191	5	−1%	208	17
3Q75)				3Q77	119	123	116	3Q79	181		+ 9%	184	175	3Q81	193	8	+1%	211	17
4Q75)				4Q77	127	130	122	4Q79	199		+10%	205	189	4Q81	190	5	−2%	208	17
1Q76	102	102	102	1Q78	124	127	121	1Q80	199		NIL	207	185	1Q82	198	5	+4%	209	18
2Q76	105	103	105	2Q78	130	133	127	2Q80	206R		+4%R	219R	185R	2Q82	197	5	NIL	206	18
3Q76	109	109	109	3Q78	140	143	136	3Q80	213	9	+3%	221	200	3Q82	194	3	−2%	204	18
4Q76	108	108	107	4Q78	148	153	143	4Q80	206	9	−3%	219	190	4Q82	192	5	−1%	202	18
														1Q83	'00	4	+4%	213	'19
														2Q83	'02*		+1%*	216*	19

F = forecast R = revised
SE = standard error * = provisional

2. *Measured term contracts index*

This index shows the movement in the cost of ordering B&CE work on measured term contracts for all contracts current at the quarter indicated, taking account of addenda A, primary and secondary percentages.

Base: 1973 schedule of rates for b iding works = 100

Date	1977	1978	1979	1980	1981	1982	198
Q1	168	176	202	244	284	308	31
Q2	169	178	207	248	285	305	
Q3	176	191	233	279	299	323	
Q4	176	196	239	280	305	321	

3. Average PSA building costs index (APSAB) measured by application of the price adjustment for ula for building contracts (se 2).

Base 1975 = 100	Building	H & V and air cond	Electrical	Combined index	Derived building materials only	Base 1975 = 100	Building	H & V and air cond	Electrical	Combined index	Derived buil materials
WEIGHTING	(87%)	(8%)	(5%)	(100%)		WEIGHTING	(87%)	(8%)	(5%)	(100%)	
1978 Q1	144	139	147	144	154	1981 Q1	219	224	236	221	225
Q2	147	141	150	147	158	Q2	224	231	238	225	231
Q3	154	143	151	153	161	Q3	230	234	240	233	233
Q4	157	153	155	156	165	Q4	236	236	242	236	238
1979 Q1	160	160	168	160	170	1982 Q1	240	247	245	241	246
Q2	164	167	171	164	178	Q2	245	252	268	247	250
Q3	180	17	176	180	189	Q3	251	253	269	252	253
Q4	186	18	183	186	196	Q4	254	254	271	255	257
1980 Q1	191	2	198	192	204	1982 Dec	254	254	272	256	258
Q2	198	20	207	199	215	1983 Jan	254	253	271	255	258
Q3	216	21	215	215	221	Feb	254	259	271	255	258
Q4	218	214	232	218	222	Mar	254*	259*	272*	255*	259*
						Apr	256*	263*	285*	258*	262*
						May	258*	265*	286*	260*	267*
						Jun	261*				

* = provis

4. Measured term contracts – updating percentages

Updating percentages to be applied to the schedules of rates in accordance with the conditions f contract.

Sched	B&CE	Dec	Land	Roads		Elect inst				Elect dist			H8
Items	all	all	all	black top	rest	rates A	rates B	sect 4	copper cable	ites A	rates B	rates C	a
Base	**1973**	**1973**	**1973**	**1973**			**1976**				**1976**		**19**
1982 Dec	265.5	283.3	271.3	458.8	289.3	196.9	290.8	221.0	118.5	161.7	290.8	190.6	30
1983 Jan	267.1	284.6	290.2	459.2	290.4	197.0	291.4	221.8	122.0	164.2	291.4	191.4	30
Feb	263.7	279.6	285.9	457.3	288.4	197.4	286.2	219.2	124.9	164.3	286.2	189.2	31
Mar	266.4	281.8	285.3	461.7	289.8	197.7	286.2	219.3	125.8	165.2	286.2	189.5	31
Apr	270.2	286.9	290.1	465.4	294.0	198.4	318.1	234.8	124.4	170.1	318.1	192.3	31
May	272.8	286.5	290.1	466.6	295.5	201.3	318.1	235.3	128.1	172.2	318.1	195.4	31
Base	**1980**	**1980**	**1981**	**1980**									
1982 Dec	19.4	18.6	11.3	34.6	21.9								
1983 Jan	19.9	19.0	17.4	34.6	22.2								
Feb	18.7	17.4	16.0	34.2	21.6								
Mar	20.0	18.0	15.8	35.4	21.8								
Apr	21.4	19	17.3	36.3	22.9								
May	22.0	19	17.3	36.6	23.3								

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QUARTERLY BUILDING PRICES AND COSTS: 13

1. The DQSS index of building tender prices

The "all in" index is based on the rates in bills of quantities for accepted PSA tenders over £40 000 excluding housing, civil engineering, mechanical, electrical and alteration works projects.

QTR	1975=100 All-in	FP	VOP	QTR	1975=100 All-in	FP	VOP	QTR	1975=100 All-in	SE	change in all-in index since previous quarter	1975=100 FP	VOP	QTR	1975=100 All-in	SE	change in all-in index since previous quarter	1975=100 FP	VOP
1Q75)				1Q77	111	113	108	1Q79	157		+ 6%	164	149	1Q81	193	9	−6%	210	177
2Q75)	100	101	99	2Q77	118	121	115	2Q79	166		+ 6%	172	159	2Q81	191	5	−1%	208	176
3Q75)				3Q77	119	123	116	3Q79	181		+ 9%	184	175	3Q81	193	8	+1%	211	177
4Q75)				4Q77	127	130	122	4Q79	199		+10%	205	189	4Q81	190	5	−2%	208	174
1Q76	102	102	102	1Q78	124	127	121	1Q80	199		NIL	207	185	1Q82	198	5	+4%	209	187
2Q76	105	103	105	2Q78	130	133	127	2Q80	206R		+4%R	219R	185R	2Q82	197	5	NIL	206	188
3Q76	109	109	109	3Q78	140	143	136	3Q80	213	9	+3%	221	200	3Q82	194	3	−2%	204	185
4Q76	108	108	107	4Q78	148	153	143	4Q80	206	9	−3%	219	190	4Q82	194F		NIL	204F	185F

F = forecast R = revised SE = standard error * = provisional

2. Measured term contracts index

This index shows the movement in the cost of ordering B&CE work on measured term contracts for all contracts current at the quarter indicated, taking account of addenda A, primary and secondary percentages.

Base: 1973 schedule of rates for building works = 100

Date	1976	1977	1978	1979	1980	1981	1982
Q1	151	168	176	202	244	284	308
Q2	156	169	178	207	248	285	305
Q3	163	176	191	233	279	299	323
Q4	164	176	196	239	280	305	321

3. Average PSA building costs index (APSAB) measured by application of the price adjustment formula for building contracts (series 2).

Base 1975 = 100	Building	H & V and air cond	Electrical	Combined index	Derived building materials only	Base 1975 = 100	Building	H & V and air cond	Electrical	Combined index	Derived building materials onl
WEIGHTING	(87%)	(8%)	(5%)	(100%)		WEIGHTING	(87%)	(8%)	(5%)	(100%)	
1978 Q1	144	139	147	144	154	1981 Q1	219	224	236	221	225
Q2	147	141	150	147	158	Q2	224	231	238	225	231
Q3	154	143	151	153	161	Q3	230	234	240	233	233
Q4	157	153	155	156	165	Q4	236	236	242	236	238
1979 Q1	160	160	168	160	170	1982 Q1	240	247	245	241	246
Q2	164	163	171	164	178	Q2	245	252	268	247	250
Q3	180	177	176	180	189						
Q4	186	186	183	186	196	May	245	252	268	247	250
						Jun	245	253	270	247	250
1980 Q1	191	201	198	192	204	July	254	253	270	252	252
Q2	198	208	207	199	215	Aug	251	253	269	252	253*
Q3	216	210	215	215	221	Sept	252*	253*	269*	253*	255*
Q4	218	214	232	218	222	Oct	253*	254*	269*	254*	257*
						Nov	254*	254*	271*	255*	258*
						Dec	255*				

* = provisional

4. Measured term contracts – updating percentages

Updating percentages to be applied to the schedules of rates in accordance with the conditions of contract.

Sched	B&CE	Dec	Land	Roads			Elect inst			Elect dist			H&V
Items	all	all	all	black top	rest	rates A	rates B	sect 4	copper cable	rates A	rates B	rates C	all
Base	**1973**	**1973**	**1973**	**1973**			**1976**			**1976**			**1973**
1982													
Apr	249.9	265.7	267.7	422.9	270.0	185.0	289.5	211.7	114.6	147.6	289.5	174.9	305.0
May	249.2	265.2	267.7	421.1	270.4	185.6	289.5	212.4	113.2	151.4	289.5	174.1	304.2
Jun	262.8	283.7	268.2	429.4	281.8	185.2	288.2	211.5	108.4	150.8	288.2	187.3	303.5
Jul	263.4	283.7	272.0	432.2	284.8	188.5	288.2	216.5	111.5	154.5	288.2	189.5	304.3
Aug	263.1	282.6	273.0	434.3	284.4	190.8	289.5	217.6	111.4	156.2	289.5	189.6	304.6
Sep	264.2	283.3	269.2	452.5	287.8	191.3	290.1	217.9	112.6	156.6	290.1	189.3	305.8
Oct	265.0	283.3	269.2	457.1	287.3	192.8	290.1	217.7	112.9	156.5	290.1	189.3	305.9
Nov	265.3	283.3	270.8	458.3	288.5	194.2	290.8	218.2	117.2	157.0	290.8	190.3	305.8
Base	**1980**	**1980**	**1981**	**1980**									
1982													
Apr	14.5	13.0	10.8	25.8	16.0								
May	14.3	12.8	10.8	25.4	15.9								
Jun	18.6	18.8	10.9	27.1	19.7								
Jul	18.8	18.8	11.8	27.6	20.6								
Aug	18.6	18.4	12.0	28.2	20.7								
Sep	19.0	18.6	10.8	33.0	21.1								
Oct	19.3	18.6	10.8	34.3	21.1								
Nov	19.4	18.6	11.2	34.5	21.8								

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