



BUILDING COSTS IN KENYA AND UGANDA.

An attempt has been made to gain some insight into the alleged discrepancy in building costs between Kenya and Uganda from published sources of data.

Concerning the widely accepted notion that building costs are higher in Uganda than in Kenya, no evidence of this has been found from published data. Using the 'Completions for Private Ownership' data, a ten year period for Kenya yielded an average cost per square foot of £1.827 and for Uganda, based on nine years, £1.811. Only in three out of nine years were building costs higher in Uganda. This particular series of building statistics is usually criticised on grounds of coverage, not the accuracy of the figures it does contain - and it is the latter which is important in this context. However, it is assumed in what follows that in fact some differential does exist.

The most detailed, and probably by far the most accurate data available on the building industry, is contained in the Census of Industrial Production reports published for Kenya in 1963 and Uganda 1964. In order to proceed with the analysis in this note one very important assumption is made - that the figures obtained for Uganda in 1964, translated into percentages, do not differ greatly from what would have been found in 1963. Thus it is assumed that over a period of two years movements in materials, labour and other costs would not have been so pronounced - and in particular so divergent - as to change to any great extent the relative proportions of these three items in total costs; and further that wages per employee, and value added per employee would not have moved so much as to invalidate the comparison given later with the 1963 Kenya figure.

On the basis of this data, and given the assumptions outlined above, an attempt is made to measure the likely difference in building costs between Kenya and Uganda in 1963.

Using the Census data, the following information can be tabulated.

TABLE I

<u>WORK DONE</u>		<u>MATERIALS</u>	<u>LABOUR</u>	<u>OTHER FACTOR</u>	<u>OTHER</u>	<u>TOTAL</u>
				<u>COSTS</u>	<u>COSTS</u>	
6026000	Kenya	2871000	1768000	564000	823000	6026000
		47.64%	29.34%	9.36%	13.66%	100%
4470000	Uganda	2133000	1070000	484000	783000	4470000
		47.72%	23.94%	10.83%	17.52%	100%

All figures in £'s.

WORK DONE: Value of Work Done, plus receipts from goods sold in the same condition as purchased, plus value of fixed assets produced, and less the value of work subcontracted within the industry.

MATERIALS: Value of materials purchased and then resold, purchased and used, other materials, plus adjustment for stock changes.

LABOUR: Total yearly receipts, including non-cash payments, to all receiving remuneration in the form of salaries and wages.

- O.F.C.: Payments to all factors of production engaged in the business except labour, and including depreciation. It thus includes interest payments, directors fees, rents, and profits. It is obtained by deducting from Value Added (and this includes rent) the cost of labour. For the derivation of Value Added see note below.
- OTHER: Includes fuel used, cost of transport, tools and parts for machinery, repairs, and other costs not specified. The figure for fuels could not unfortunately be included under 'Materials' as this item is handled differently in the two Censuses. In Kenya the fuel figure is fuel used on the site, and that used in a contractors own transport is included in an overall cost of transport figure. In Uganda 'fuel' is all fuel used. In line with the definition of 'Work Done' cost of subcontracted work is not included.

TABLE II

	<u>TOTAL WAGE</u>	<u>NUMBER</u>	<u>WAGE PER</u>	<u>VALUE</u>	<u>V.A. PER</u>
	<u>BILL</u>	<u>EMPLOYED</u>	<u>EMPLOYEE</u>	<u>ADDED</u>	<u>EMPLOYEE</u>
Kenya	£1768000	7518	£235.1689	£2332000	£310.1888
Uganda	£1070000	8941	£119.6734	£1554000	£173.8060

NUMBER EMPLOYED, WAGE PER EMPLOYEE. This figure relates to the number employed at the end of the year. This is clearly unsatisfactory for calculating wage per employee, and it would be better to use the average number employed throughout the year. The quarterly data needed to do this, however, is not available for Kenya. In an appendix an attempt to calculate these figures from cement consumption is given, and the implications discussed.

VALUE ADDED, V.A. PER EMPLOYEE. Uganda. V.A. equals Work Done less Industrial Costs (fuels, Materials, tools & parts, other unspecified costs, and repairs and maintenance). Kenya V.A. equals Work Done less Industrial Costs (fuel, Materials, repairs & maintenance) and Non Industrial Costs (transport, tools and parts and other unspecified costs). Thus Uganda V.A. equals what is called Net Output in Kenya.

From Table II it will be seen that the average wage in Kenya is almost twice as high in Uganda - 1.9650891 to be precise. On the other hand, the productivity of labour - as measured by V.A. per employee - is 1.7846840 times as high in Kenya than Uganda. It follows therefore that labour costs are higher in Kenya than in Uganda. This is likely to come as somewhat of a surprise to those commentators on the costs discrepancy who attribute much of the difference between Kenya and Uganda to differences in labour productivity. Whilst these figures bear out their judgement on productivity, they also show that the figure of most interest in a cost comparison - labour cost - is against Kenya.

Given the difficulties already mentioned in using 1963 and 1964 data, and because the rest of the argument rests on the correctness of the difference between these two ratios, the conditions under which they might change and their sensitivity must be assessed.

The conditions under which the ratios would have changed between these two years are as follows:

- (a) if wages in Uganda in 1964 were higher than in 1963, and assuming productivity to be unchanged, the ratio between wages in 1963 would have been greater and so Kenya's

- (b) if productivity had risen in Uganda between the two years, but wages had remained the same, then the productivity ratio in 1963 would have been greater than 1.78, so invalidating the argument that labour costs were higher in Kenya. To move the productivity ratio up 0.1 times, productivity would have had to have risen in Uganda between 1963 and 1964 by 5.5%
- (c) if wages in Uganda had in fact fallen from a higher level in 1963, to the level shown for 1964, then the wage ratio in 1963 would be less than 1.96, again invalidating the argument that labour costs were higher in Kenya. To move the ratio down 0.1 times, wages would have had to have fallen by about 5% between 1963 and 1964.
- (d) had productivity fallen in Uganda between 1963 and 1964, the productivity ratio in 1963 would have been less than 1.78, which would have confirmed the claim that wage costs were higher in Kenya.
- (e) a composite move could have arisen - a fall in wages by about 5% and a rise in productivity by 5.5% in Uganda between 1963 and 1964.

To check these points against the facts would be difficult, if not impossible, in the case of productivity. But if the likelihood of any fall in wages is discounted between the two years, and bearing in mind that the most optimistic estimates of annual increase in productivity are put at 5%, then the ratio of 1.78 to 1.96 seems a reasonable working hypothesis.

The difference between the two ratios of 1.1804051 implies a 9.02% disadvantage to Kenya in labour costs. Using the breakdown of total cost figures given in Table I and postulating various differences in total costs as between Kenya and Uganda, the following information can be tabulated as to the differences in the composition of total costs under these assumptions.

TABLE III

% BY WHICH COMPONENTS OF COST IN UGANDA EXCEED THOSE OF KENYA GIVEN THE FOLLOWING TOTAL COST DIFFERENCES:

	30%		20%		11%		10%	
	%	P	%	P	%	P	%	P
MATS.	30.22	14.40	20.20	9.62	11.19	5.33	10.18	4.85
LAB.	6.07	1.78	-2.09	-.61	-9.43	-2.77	-10.25	-3.01
O.F.P.	50.42	4.72	38.85	3.64	28.43	2.66	27.28	2.55
O.C.	66.73	9.12	53.91	7.36	42.37	5.79	41.08	5.61
		30		20		11		10

The columns headed P in the table have been calculated by taking the percentage differences in costs and weighting them according to the breakdown in Kenyan total costs.

It can be seen from Table III that the assertion that labour costs in Kenya are some 9.02% higher than in Uganda - based on the differences between the wage and productivity ratios - is feasible only when a 11% difference in total costs is postulated. Any difference in total costs greater than this eventually implies that labour is more expensive in Uganda, while any smaller difference in total costs places the cost of Ugandan labour more favourably than is justified.

The largest discrepancy in costs occurs under the heading 'Other Costs', followed by 'Other Factor Payments' and then 'Materials'. Having weighted these items by their relative importance in total costs, leaves 'Other Costs' as the most important cause of the overall difference, but it is now closely followed by 'Materials', with 'Other Factor Payments' least in importance of the three.

With the 'Materials' element, it may be that the 11.19% difference between Uganda and Kenya represents mainly the transport disadvantage for imported materials, but also some element of higher production costs in Uganda, as with cement. It can therefore be considered as a fairly stable difference around the 11% mark. At least two of the items in 'Other Costs' are from Uganda's point of view going to be subject to the same cost raising forces as affect the 'Materials' group i.e. transport costs. Any further comment on the 'Other Costs' is not possible due to differences in grouping in the two Censuses.

The concept 'Other Factor Payments' deserves elaborating. Covering as it does all payments to factors of production, except labour and depreciation, it corresponds to the accountants Trading Surplus concept. Its interest stems from the fact that all other current costs having been allocated among the other three costs groupings, it represents a maximum profit earned figure, and expressed as a Percentage of 'Work Done' renders it akin to a maximum mark-up on turnover. As seen from Table I, this mark-up is rather on the low side, and certainly smaller than the percentage found for manufacturing industry. There are two reasons for this - first that the degree of competition in the building and construction industry is bound to be higher than in many or most manufacturing fields where one firm monopolies are frequently to be found, and second that the building and construction industry is known to have been operating at a low level of activity for a number of years prior to, and during, 1963.

The Trading Surplus may be used in another way. If it is assumed that the industries in both countries are equally capital - intensive, then it is also possible for us to postulate that their depreciation charges will be roughly the same proportion of total costs. If, however, it is found that the percentage mark-up differs between Uganda and Kenya, then it can be inferred that profits are higher in the country with the highest mark-up. Should the country with the lowest mark-up be the most capital intensive, then the other country has that much greater a profit element in total costs.

Looking at the productivity figures for Uganda and Kenya it would seem reasonable to expect that at least part of the reason for the much greater productivity in Kenya could be attributed to a more capital intensive production. Following through the argument above on the basis that the mark-up is lower in Kenya than Uganda, then profits in 1963 in Uganda must have been much higher than in Kenya. However, using the only method available of judging the capital intensity of production - labour as a proportion of value - added the figure for Kenya is 75.8148 and for Uganda 68.8546. This means either that the Kenyan industry is less capital intensive than the Ugandan, or that profits in Kenya were lower. Given that Kenyan contractors have been encroaching upon the Ugandan market for the past few years, then the point concerning relative profits seems fairly well substantiated. But if one grants this, then what accounts for the very great difference in productivity between the two countries? The explanation must be in terms of differences between the two countries in human characteristics (firmly held by many contractors in Uganda), the quality of supervision or training of labour.

Of the four elements of cost, 'Other Factor Payments' are likely to be the most volatile depending as they do on the state of the market. Elimination of the cost difference under this heading - assuming the other items to maintain the same differences - gives an 8% figure for the total cost difference between Kenya and Uganda. This may be regarded as a norm, to the extent that the other cost elements are fixed in their differences over time.

This note, based on the Censuses of Production for Kenya in 1963 and Uganda in 1964, has attempted to measure the alleged discrepancy in building costs between Kenya and Uganda. A figure of 11% against Uganda has been suggested as feasible, though it should be borne in mind that a difference has been assumed to exist despite evidence to the contrary.

It should be emphasised that what has been calculated is the difference in building costs in general and not the difference that might exist in a branch of the industry with a different breakdown of total costs among the four elements than has been used here.

The argument has proceeded to suggest that profits in Uganda have been in the past, if not today, higher than in Kenya. Furthermore, if one assumes that profits are a volatile element changing with conditions in the building market, whilst the differences in the other elements of cost are more stable, then a norm for the difference in total costs of 8% can be postulated - which is much lower than seems to be implied by the volume of comment on the cost disparity.

APPENDIX

<u>KENYA</u>	<u>QUARTER</u>	<u>NUMBER</u>	<u>QTR. CEMENT.</u>
	4	7518	64659
	3	9095	78221
	2	9161	78787
	1	<u>8262</u>	71053
		34036	

average number employed = 8509

The above table gives quarterly employment figures for Kenya calculated from cement consumption lagged one period.

The average number employed in the Ugandan industry during the course of 1964 = 7466

Using these average figures, the following relationships may be calculated.

	<u>Kenya</u>	<u>Uganda</u>
Wage per Employee	£207.7799	£143.3163
V.A. per Employee	£274.0627	£208.1435
Thus Kenya wages =	1.4497994 times those of Uganda	
prody =	1.3167007 " that " "	

The important point is not that the relationship is different from that used in the text, but that it is in the same direction and of the same order of magnitude.

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