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Lower-Middle Income African Consumer Behaviour: Nairobi

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This brief report on the results of an empirical study of African consumer behaviour in Nairobi constitutes a part of a larger study of East African consumer behaviour the objectives of which are to measure income elasticities of demand for important groups of consumer commodities in urban, semi-urban, and rural areas of East Africa. It is hoped that any patterns of consumer behaviour which may be common to these different environments can be detected by comparisons of Engel curves fitted to budget study data. The data sources for the entire study consist of published sample budget surveys which have been carried out by the Statistical Units of Uganda, Kenya, Tanganyika, and Zanzibar. The particular sources for Nairobi area: "The Patterns of Income, Expenditure, and Consumption of Africans in Nairobi, 1957/58", East African Statistical Department, Kenya Unit, May 1959; and "The Pattern of Income, Expenditure, and Consumption of African Middle Income Workers in Nairobi, July 1963", Directorate of Planning, July 1964.

The general importance of budget studies of consumer behaviour in a rapidly changing economy hardly needs mention. Clearly, aggregate income-expenditure relationships are unlikely to remain stable during periods of rapid income redistribution, especially redistribution among different racial and cultural groups. Much additional sample survey work is needed in East Africa so that the consumption behaviour of all major groups can be analyzed. In particular, budget studies are needed of upper income Africans, the Asian Community, and the European Community.

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To arrive at the Engel curves and income elasticities presented below, the following adjustments were made to the data from the sources cited above:

a. The two budget surveys were merged to provide observations on 11 income groups of households, ranging from sh. 123 per month to sh. 1100 per month.

b. income was defined as income from employment and regular sales, plus housing allowance, less taxes paid. Non-recurring gifts were not included.

c. total expenditure included the estimated value of housing if received free or subsidized, but gifts given, remittances, and taxes paid were substracted.

d. a price level adjustment, increasing 1957/58 expenditures and incomes by a factor of 1.08, was made.

e. all data were expressed per adult equivalent according to the scale: children less than 16 years = 0.6, females 16 and over = 0.8, and males over 16 = 1.0.

The grouping of commodities into expenditure groups needs little comment except for the seemingly strange category "meat, fish, and meals outside the home". Expenditures on meat and fish alone showed a very irregular pattern. Mr. Joseph Kamau made the observation that Africans very frequently go out to eat meat, i.e. that meals outside consist primarily of meat. When these two categories were merged, a very regular pattern of expenditure emerged.

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Since the observations used were averages over different numbers of households, the methods of fitting used was weighted least squares, the weights being the numbers of households in econ income group.

An analysis of the financial transactions of the sample households will be carried out later as part of the study.

Results.

Functional Forms for Engel Curves (in computation, logs to base 10 are used e indicates elasticity):

a. linear: $y = a + bx$, $e = b\frac{x}{y}$

b. inverse: $y = a + b(\frac{1}{x})$, $e = \frac{b}{xy}$

c. semi-log: $y = a + b \log x$, $e = .4343 \frac{b}{y}$

d. log-log: $y = a + b \log x$, $e = b$

e. log inverse: $\log y = a + b(\frac{1}{x})$ $e = 2.3026 \frac{b}{x}$

f. log-log inverse: $\log y = a + b (\frac{1}{x}) + c \log x$, $e = c - 2.3026 \frac{b}{x}$

	Expenditure Category	Functional form	Parameter Values and Standard Errors			Wtd Mean Exp.	Elast-icity at Means
			a	b	c		
1.	Total exp.	linear	30.44 (5.613)	.728 (.0404)	-	121.84	.7501
2.	Total food	log-inverse	1.818 (.0184)	-9.51 (1.619)	-	53.04	.1745
3.	Cereals & breads	log-log-inverse	2.309 (.7668)	-16.60 (13.23)	-.4813 (.3103)	14.36	-.1768
4.	Milk & eggs	semi-log	-7.644 (.9563)	7.029 (.4646)	-	6.75	.4522

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Expenditure Category	Functional Form	Parameter Values and Standard Errors a	b	c	Wtd. Mean Exp.	Elast-icity at Means
5. Confectionary	log log inverse	1.993 (0.400)	-26.44 (6.911)	-.5808 (.1622)	3.45	.0960
6. Meat, fish & Meals out	semi-log	-9.061 (5.676)	12.478 (2.758)	-	16.48	.3289
7. Vegetables & fruits	semi-log	-4.973 (1.669)	5.133 (.8110)	-	5.53	.4030
8. Oils & fats	semi-log	-4.459 (1.511)	3.598 (.7341)	-	2.91	.5370
9. non-alcoholic beverages	semi-log	-1.163 (.8331)	1.549 (.4047)	-	2.01	.3350
10. Alcoholic beverages & tobacco	linear	-.1265 (.7493)	.0718	-	8.89	1.014
11. Clothing, including footwear	semi-log	-38.59 (4.876)	23.928 (2.369)	-	10.39	1.000
12. rent, rates and water	semi-log	-44.522	30.226	-	17.35	.7570
13. furniture & furnishings	log-log	-2.207 (.3196)	1.385 (.1553)	-	5.59	1.3850
14. transport and transport equip.	log-log	-3.040 (4699)	1.802 (.2283)	-	6.77	1.8020
15. Fuel and light	inverse	5.309 (.3195)	-110.50 (28.15)	-	4.19	.2100
16. Recreation and entertainment	semi-log	-10.176 (1.124)	5.923 (.5459)	-	1.95	1.3190
17. Medical and personal health	log-log	-2.846 (2884)	1.561 (.1401)	-	2.96	1.561
18. Household operation	log-log	-2.366 (.4001)	1.352 (.1944)		3.26	1.3520
19. Misc. services incl. education	log-log	-3.317 (.8449)	1.756 (.4104)		3.21	1.7560