INAPPROPRIATE PRODUCTS AND TECHNIQUES IN UDC'S:* THE CASE OF BREAKFAST FOODS IN KENYA

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ABSTRACT

The production of breakfast cereals in Kenya is a relatively recent phenomenon. Considered in relation to traditional breakfast foods and other modern alternatives, breakfast cereals provide nutrients to the consumer at a very high unit cost.

Although consumption of breakfast cereals is at present largely confined to the expatriate community, they are now being aggressively marketed with the intention of inducing a more widespread pattern of consumption.

It has been shown in other studies that choice of product often determines the choice of technology. A similar pattern occurs in regard to breakfast foods where inappropriate, high income products require inappropriate techniques of production.

Introduction

I

In recent years discussion in the related subjects of technical choice and appropriate technology has been concerned with two observations. The first is that choice of production technology is closely linked to product choice, such that the prior specification of product often determines the subsequent choice of technology.[1] The second observation which concerns us here is that the combined effects of unequal patterns of income distribution,[2] the demonstration effect on consumption patterns associated with the presence of expatriates and visits by nationals of udcs overseas, and the organised attempts by producers to influence taste patterns of consumers, have together led to demand structures which have facilitated the introduction of inappropriate products, and hence of inappropriate techniques.

In this short paper we are concerned to show how in one udc - Kenya - such a move from traditional, appropriate products to new, less appropriate ones significantly increases the nutrient cost to consumers and, moreover, results in the introduction of inappropriate production techniques. We have chosen to illustrate this with the example of breakfast cereals, comparing imported and locally made breakfast cereals with alternative foods, some of which have been consumed over very many years.

II

Traditionally Kenyan diets, although varying in different regions, made extensive use of maize and maize flour, frequently combining these with various types of beans. Often, as in Southern and Central Africa, maize flour was eaten in a porridge form ('Ugali') and, today, this is still the predominant staple food in much of the country. With the advent of European and Asian settlers over the past century, wheat flour and associated products (such as bread) have entered local diets as well.

Today maize flour remains the staple food of much of Kenya's population, although the consumption of wheat-based products is growing rapidly amongst those with cash incomes.[3] The predominantly urban-based elite, however, seldom eat either maize flour or derivative products and prefer other, more expensive

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1. See F. Stewart, Technology and Underdevelopment, Macmillan, 1977, who discusses this problem in relation to maize flour in Kenya.

2. See J. James, Technology, Products and Income Distribution: A Conceptualization and Application to Sugar Processing in India, I.L.O., Geneva, for an application of this analysis to sugar and jaggery.

3. For a discussion of the market characteristics and growth in demand of bread, see Appropriate technology in a developing country: the bread industry in Kenya, R. Kaplinsky, Nairobi, 1977.

alternatives. In part this preference arises from higher incomes - but in part it is also due to the historical origins of the elite, which has been almost exclusively drawn from immigrant Europeans and Asians and from expatriates. But latterly, increasing class differentiation amongst Kenyan Africans has led to the emergence of an African elite. This elite has eschewed the staple foods of the mass of the population and instead has consumed more 'exotic'/ breakfast cereals, some of which have come to be produced in Kenya with the advance of import substituting industrialisation. Consumption of these breakfast cereals is significant. In 1977 local sales of Post Toasties were £75,000 and in the first three months after launching, the combined sales of Weetabix and Weetaflakes (a small proportion of which may have been exported) were £45,000. In addition a new small puffed wheat plant will soon come on stream, there are three brands of muesli's on the market[1] and numerous brands of breakfast oats. The total market for locally produced breakfast cereals is therefore currently about £300,000 per annum plus imports, which in 1976 were almost £50,000.

Considering, as we do, only breakfast foods, we can see from table 1 that there is a wide variety of products with a considerable variation in unit price, embracing traditional and modern staples as well as imported and locally produced breakfast cereals.

Table 1. Unit cost of different breakfast foods(a)

		shs/100 gms.
Staples. (i)	Traditional	
	Maize flour - hand pounded/hammer mills (100 % extraction)	0.10
	roller mill (60% extraction)	0.17
(ii)	Modern	
	Wheat flour ('Atta - 85% extraction)	0.25
	Bread	0.30
High income foods (i)	Locally made	
	Post Toasties	2.70
	Weetabix	1.99
	Weetaflakes	2.49
(ii)	Imported	
	Special K	9.00
	All Bran	3.68
	Puffed Wheat	8.01
	Shredded Wheat	4.77
	Rice Krispies	7.25

(a) All prices as in large sizes of each product as in shops, except for maize flour where we have used the pruchasing price of the Maize and Produce Board (shs 80 per 90 kilos) rather than the market price which various between shs 45 and over shs 200, depending upon the season and region; milling charges obtained from field observation.

1. One of these (Alpen)is being made under licence from Weetabix, U.K. An interesting aspect is that this licence, with royalties at 5% of net sales, has evidently been contracted for brand-name reasons. On being shown around the new Weetabix plant in 1977 we were informed that the formula for this muesli was well-known in the industry but access to the brand name and advertising copy required a formal agreement with a developed country producer.

As can be seen from this table there are four distinct price groupings of breakfast foods. At the lowest level is the traditional staple - maize flour - where there is nevertheless some variation between the 'modern' roller mill flour and the 'traditional' hand pounded or hammer mill flour.[1] The second grouping is that of the 'modern' staples, one of which - bread - has the advantage of not requiring any preparation before consumption. At a significantly higher price level are the locally made high income breakfast foods[2] which are, in turn significantly cheaper than the imported variants of similar products.

Table 2. Unit Nutrient costs of different breakfast foods[3]

	Carbo-hydrates	Protein	Fat	Ash	Fibre	Galories	Vitamins		
							Thiamine	Ribo-flavine	Niacin
	gms per shilling						mgs per shilling		
Staples									
Traditional									
- maize flour (100% extraction)	710	100	45	115	20	3,630	3.5	1.3	20
maize flour (60% extraction)'sifted'	453	47.1	8.8	68.8	4.1	2,082	.3	.2	3.5
Modern.									
- wholemeal flour (85% extraction)'Atta'	288	44	6.4	94	4	1,384	13.2	.3	8
- bread	168	29	10.7	6.7	NA	900	1.5	1	14.6
High Income Foods									
Locally made									
- Post Toasties	32.6	2.8	.2	.7	.2[b]	136	.2*	.4*	2.1*
- Weetabix	38.7	5.5	1	2.1[b]	.9[b]	176	.4*	.5*	5*
- Weetaflakes[a]	32.6	3.4	.7	1.7	.7	150	.3*	.4*	4.2*
Imported									
- Special K	8.1	2.2	.1	.2	.1	40	.1*	.1*	.8*
- All Bran	18.2	3.6	1	2.1	1.8	95	.3	.4	.3
- Puffed Wheat	9.4	1.8	.3	.2	.3	44	.2*	.02*	.6*
- Shredded Wheat	16.6	2	.6	.3	.4	76	.1	.03	1
- Rice Krispies	12	.8	.1	.3	.1	49	.1*	.2*	.2*

a. Assumed to have equivalent nutritional characteristics as Kellogs Whole Wheat Flakes

b. Assumed to have equivalent ashand fibre content as Weetaflakes which is made in the same plant and is of almost identical composition.

* Enriched to these levels.

Sources: For nutrients of breakfast cereals, N L Kent, Technology of Cereals with Special Reference to Wheat, Pergamon Press. For nutrients of bread, Y Pomeranz (ed), Wheat Chemistry and Technology, American Association of Cereal Chemists, Minnesota, 1964. For nutrients of maize and wheat flour, FAO/U.S. Public Health Service, Food Composition Tables for Africa- For Weetabix and Weetaflakes, from packet. Prices as at 11th March 1978.

1. Sifted maize flour (i.e. 60% extraction)produced by roller mills is whiter, finer to the touch and cooks more easily than the 100% extraction flour emerging from hand pounding and hammer mills.

2. We have ignored in this paper breakfast oats and the even more expensive locally made and imported muesli's, since it proved impossible to obtain detailed nutritional breakdowns of these products.

3. In comparing the unit prices of the different products it is important to remember that we are not comparing identical products since bread and breakfast cereals (local and foreign) require no preparation and hence save both time and energy needed in cooking.

These variations in unit prices are of considerable interest in that they show sharp price differences between different types of breakfast foods. However, in addition, each product has different nutritional composition and it is consequently of added interest to compare the unit nutrient costs of these different products. This is done in table 2.

It can be readily seen from table 2 that the 90:1 price differential between the cheapest traditional staple (maize flour, 100% extraction) and the most expensive imported breakfast cereal (Special K) is further exagerated by the superior nutritional content of the traditional staple. And even if we exclude imported cereals and concentrate on locally made cereals alone we find the following ratios between their unit nutritional costs and that of 100% extraction maize flour (table 3 below).

Table 3. Differential between unit nutrient costs for 100% extraction maize flour and locally manufactured breakfast cereals.

	Unit price differential	Carbo-hydrates	Protein	Fat	Ash	Fibre	Calories	Vitamins Thaimine	Ribo-flavine	Niacin
Weetabix/ maize flour	20	18	19	45	55	22	21	9	3	4
Weetaflakes/ maize flour	25	22	30	64	68	29	24	12	3	5
Post Toasties/ maize flour	27	22	36	225	164	100	27	18	3	10

Source: Table 2

On the basis of the evidence presented above it is indisputable that both in terms of unit cost and nutrient cost, breakfast cereals (both local and, especially, imported variants) are an expensive way of satisfying basic nutritional needs of consumers. Moreover most of the imported breakfast cereals and some of the locally produced ones have added sucrose and/or in the eating it is customary to add additional sugar. By contrast, traditionally, and in most cases today, ugali is eaten without added sugar. The effect of this added sugar is undoubtedly deleterious to the teeth and this is particularly so in the case of those breakfast cereals which are of a sticky consistency and which adhere to the teeth.[1] It is also probable that the coarse consistency of 100% maize flour has the additional benefit of cleaning the teeth.

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1. I am grateful to Dr. Owino of the Dental School at the University of Nairobi for confirming this point.

III

The fact that these inappropriate cereals continue to be freely sold in Kenya reflects two, amongst many factors. The first is that there exists an elite which has sufficient income to enable the purchase of these cereals despite their high costs.[1] And the second factor is that consumers are either malinformed or deliberately misinformed about the value of such breakfast cereals. It is this latter point which draws our attention.

Unlike the stereotyped consumer of neoclassical economic theory who carefully evaluates the objective merits of different products and then maximises his/hers 'utility function', most mortals have their taste patterns formed in less 'rational' ways. Two influences on these taste patterns stand out in in our observations on the breakfast food market. The first is the demonstration effect where the consumption patterns of the expatriate elite are frequently copied by the nouveau riche Kenyans and are subsequently 'passed down' to the poor masses as standards worthy of emulation. Evidence that this passing down does occur can be gained from the practices of advertising agencies in Kenya. As one of the most prominent of these agencies commented on the Weetabix/ Weetaflakes advertising campaign[2]

> "... They /the producers of Weetabix/ use the same strategy as East African Industries /the Unilever subsidiary/ - stick it in at the top of the market and let it sink down".

The same view was expressed by the agency actually responsible for Weetabix/Weetaflakes advertising who commented, additionally, that it "is easier for products to go down than to go up". Moreover it is the strategy of this advertising programme to begin with the A and B income groups, that is those families earning more than £1,200 p.a. who need to be made aware of a product which they have used in the past, and only incidentally to "reach down" to lower income groups who need to be "educated" into different uses for these products. But the hope and expectation exists that such consumption patterns will be increasingly emulated by the emergent rich and some poorer consumers. That such a strategy is workable is perhaps illustrated by a short article in a recent edition of Viva, a woman's magazine in Kenya.[3] This story referred to the plight of a mother whose husband has just left her and is left with one

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1. For example a large 500 gm box of Post Toasties sells for shs 13.50 which is equal to approximately two days agricultural labour in Central Province, the richest region in the country.
2. Perhaps equally disturbing is the nature of local consumer preferences such that the advertising industry considers it unwise to advertise products directly for low income consumers. Thus one advertising agency commented,"...if you want to kill a product give it a Swahili name" and gave as an illustration of this the failure of 'Jambo' beer in the early 1970's.
3. D. Faith, 'A Jobless Woman's Plight', Viva, March 1978, p.117.

shilling and thirty cents to feed herself, her baby and her youngest sister. After giving the baby some Haliborange.she is desperate for other food, the milk having almost run out

> "But I realized the milk was not enough to fill one cup. Another idea: there are two bits of Weetabix left in the cupboard. Use the milk to mix this Weetabix for the two kids and it will be even more filling than the milk alone.
> They ate their Weetabix with relish..."

The second factor influencing taste patterns of consumers is that of advertising and here the pattern of advertising expenditure on breakfast foods (shown in table 4 below) is of considerable interest. It shows that relatively to sales and absolutely in terms of costs, more effort was put into marketing these high cost breakfast cereals - the kindred products of Weetabix and Weetaflakes alone spent more on advertising than the whole of the maize flour industry which (in terms of value added) is probably the largest single industry in Kenya. Moreover, a breakdown of this gross advertising expenditure in terms of different media reminds us that the market being catered for by the producers of breakfast cereals is, in the short run, confined predominantly to expatriates. Thus of the four radio stations (one English, one Swahili, one Kikuyu and one Luo), Weetabix, Weetaflakes and Post Toasties advertised only on the English channel whereas maize flours were exclusively advertised in the Swahili channel. Similarly Weetabix, Weetaflakes, Alpen and Uji Plus (a new maize-flour based instant food produced by East African Industries[1]) confined their cinema advertising to major cinemas in the cities whereas about half of the advertising expenditure on maize flours went on mobile cinemas in the rural areas.

Table 4. Advertising expenditure in different media: 1977 (£)

	Press	Radio	T.V.	Cinema	Total
Post Toasties	1,333	1,349	0	0	2,682
Weetabix	8,372	8,691	3,219	4,795	25,077
Weetaflakes	2,554	2,348	0	0	4,902
Maize flours[a]	3,689	6,994	0	4,572	15,436
Uji Plus	0	0	687	1,890	2,577

a) Some of this (probably less than 40%) also covers advertising of animal feeds.

Source: Kenia Media Advertising Review, 1977, Corcoran and Tyrrell, Nairobi, forthcoming.

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1. It had been our original intention to include Uji Plus in this analysis. But on approaching E A Industries for information we were initially told that full details were given on the box (which is not true), then that the nutritional content was as for the raw materials (which they subsequently refused to specify) and was unaffected by processing. On pressing for the details of nutritional content, we were dismissed with the comment "You see we are part of a multi-national...".

IV

The pattern which is emerging in the breakfast food industry is thus clear. Breakfast cereals with high unit nutrient costs are being aggresively marketed as an alternative to traditional foodstuffs. While, as we have seen, in the short run the market is largely confined to the urban, expatriate elite, the producers have both the hope and the expectation that in time consumption will be spread more widely through the indigenous population.

It is pertinent here to return to our earlier theme of the link between inappropriate products and inappropriate production techniques. Characteristically these high income breakfast cereals are produced with a proportion of imported raw materials[1] and use investment intensive imported machinery and skills. This is clearly the case when we compare the production of Weetabix and Wheetaflakes with that of maize flour by hammer mills. The n w breakfast cereal plant cost about £600,000,[2] most of which was imported machinery and building components. Assuming that the gross turnover is about £160,000 p.a., it is unlikely that the domestic value added of this plant is more than £130,000 p.a. since 5% of sales is remitted in the form of a technical service agreement, and the machinery and some of the inputs are imported. By contrast, at a conservative guess, we reckone that the domestic value added in hammer mills is about one shilling per minutes[3] Assuming eight hour operation for only 200 days a year, each hammer mill has a yearly domestic value added of almost £5,000 and, with all components, only costs about £2,000. Thus the same money spent on maize mills would provide domestic value added of £1,440,000, would provide employment for at least 600 people (rather than the 15 employed at the Weetabix/Weetaflakes plant) and moreover would help to spread income and food availability throughout the rural areas, rather than concentrating incomes in urban areas, producing high unit nutrient cost products for the well-off.

A second aspect of inappropriateness of such breakfast cereal plants is that their use seems to be associated with technical service agreements with foreign technology suppliers. In the Weetabix/Weetaflakes case the products are produced underlicence from Weetabix England, at a cost of 5% of net sales, with a minimum of £3,000 p.a. The agreement runs for ten years and is renewable for two further ten year periods. The agreement, formulated

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1. Thus Weetabix and Weetaflakes add imported vitamins to make up for the high cost, while the manufacturers of Post Toasties are obliged in terms of their technical services agreement to import malt syrup and vitamins from General Foods.

2. E A Trade and Industry, June 1977

3. Based upon field observations made in 1975.

under English rather than Kenyan law, limits the Kenyan licensee from producing competing products. The agreement also specifies that the Licensee would be supplied with surplus advertising material from the U.K. and in fact the films and promotional offers (e.g cut-out vintage cars) were supplied in this way.

Similarly Post Toasties is made under licence from General Foods in the U S A. This licence agreement stipulates that at least fifteen per cent of gross sales revenue must be spent on advertising and promotion and, as in the case of Weetabix and Weetaflakes, the form and the content of this advertising and promotion must have the prior approval of the licensor. Royalties are calculated at 5 per cent of gross sales revenue.

V

This example of inappropriate products and technology is perhaps particularly notable because it bears such a direct relationship to basic needs. The presence and development of these inappropriate products is particularly striking in the context of nutritional deficiencies in Kenya, which are extensive - in 1977 one third of a national sample of children under four years weighed less than eighty per cent of the age-standard weight.[1] Moreover this observation is hightened by the content of the advertising which is aimed at women, particularly with reference to their childrens' needs and stresses the nutritional value of the products.[2] The expectation of the manufacturers that these products will supplant cheaper sources of nutrition is evident.

However despite the particular nature of this case study we should not lose sight of the more generalised phenomenon which has seen the wide-spread introduction of inappropriate products and techniques in UDCs. Moreover, as Langdon points out,[3] it is too simple to point to the presence of MNC subsidiaries alone as an explanation for these phenomena, since in this case the high income cereals are all produced by locally-owned firms, albeit producing under licence from foreign suppliers of product and production technology. We

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1. The Rural Kenyan Nutrition Survey, Social Perspectives, Vol 2 Number 4, September 1977.

2. Advertising copy, introduced from the U K implied that Weetabix and Weetaflakes, produced from whole wheat, is of unusually high nutritional value. The local advertisers of these products aim to get the products into households by pursuading mothers that it is particularly nutritious for their children, thereby at the same time also indirectly stimulating consumption by adults.

3. S Langdon, Taste Transfer and MNCs, Review of African Political Economy.

should instead look to the wider nexus of relations between dependent peripheral udcs and the global economy, of which the presence of MNC subsidiaries is merely one aspect of a larger interrelationship. Nationalising ownership[4] without at the same time restructuring demand patterns may be a false dawn to a more relevant pattern of development.

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4. Of incidental interest, here, is a clause in the licensing agreement with General Foods which stipulates immediate termination if the assets of the local licensee are nationalised, seized, expropriated or a confiscated by the Kenya Government.