

INAPPROPRIATE CHOICE OF PRODUCT TECHNOLOGY:
ROOFING AND MILK-PACKAGING MATERIALS IN KENYA ©

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By

Peter Coughlin

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Industrial Research Project
Economics Department
University of Nairobi

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A B S T R A C T

This study focuses upon the employment and foreign exchange savings from an appropriate choice of products. Roofing and milk packaging are used to illustrate how an appropriate choice of products offers a government a potent tool for increasing jobs and decreasing dependence upon imported inputs and capital. The study argues that, if politically desired, the choice of products can be manipulated through simple policy changes. But though the required economic policies are simple, the task is more political than economic.

A formidable political problem arises if a shift to more appropriate products is desired. Opponents are often alert, well-financed, and strategically placed; the potential beneficiaries remain individually unspecified, unorganised, and unperturbed. Clarity and strong political determination is needed to confront the vested interests benefiting from the nation's use of inappropriate products that require an excessive dependence on imported inputs, dampen industrialization, and deprive the nation of needed jobs.

I. INTRODUCTION

A consensus appears to be emerging among economists with regard to criteria for defining the characteristics of appropriate technology, i.e. its capital, import, and skill intensity or the simplicity and scale of the technology itself (McRobie 1979, McBain 1977:836, Kuuya 1977). The growth dynamics of training, forward and backward linkages, and the cultural, social, and environmental impacts have also been considered (Kuuya 1980:71; Koloko 1979).

Numerous case studies have demonstrated that efficient technologies with widely different capital-labour ratios and materials' efficiencies exist to make many products (Forsythe 1977; Bhalla 1975; Kaplinsky 1984). Yet grossly inappropriate technologies have frequently been preferred even when they lower social or private benefits (D.F. Stewart 1985; Kaplinsky et al 1975; Winston 1979). The frequency of such incorrect choices has led some researchers to doubt whether policies to change relative prices (e.g. of capital and labour) or to disseminate technological information can have much impact upon the choice of technology (Pack 1979:30; Forsythe et al 1977:386, Stewart 1985:649). Kaplinsky et al (1975) concluded from a study of can manufacturing that:

It seems fairly clear from our observations in Thailand that inept decisions are apparently quite widespread. [p.118]... If it is the case, as we suggest on the basis of these case studies, that the decision-making process is relatively unresponsive to relative prices, then efforts to manipulate prices so as to change the decisions made are unlikely to succeed unless the manipulation is massive --- so massive that it would almost certainly generate other undesirable economic distortions.(p. 120)

Besides prices, many other economic, social, political, and institutional influences affect the technological choices made by numerous plant managers and directors (Santerre 1982:239; Koloko 1979:94). With this realization, the research frontiers have expanded --- or refocussed --- to consider how best to enhance indigenous technological capabilities, and what types of institutions engender decisions favouring appropriate technology (King 1984).

Skepticism over the efficacy of policies designed to effect more appropriate choices of technologies is largely derived from case studies of production technology. The implications of choices between substitute products - - the focus of this study - - are less well examined.

Studies of product technology do seriously question the appropriateness of some multinational corporate (MNC) taste transfers because of lower quality (e.g. breakfast foods), less use of local labour, and high dependence on imported capital and material inputs (F. Stewart 1979:62-70; Huq 1977; Langdon 1975 and 1984; McBain 1977:833; Kaplinsky 1978). Moreover, these studies show the overwhelming influence of consumer preferences often swayed by intensive MNC advertising. Sometimes MNCs also use political pressure to tilt taxes and demand against more appropriate local substitutes (Langdon 1977). Indeed, the alignment of political forces often favours MNC product technology even when it is manifestly inappropriate for a developing country.

Except to protest public health, most developing countries have no policy to vet and prohibit dubious products from introduction into the local market. Even dangerous products are sometimes allowed (e.g. skin lighteners and asbestos insulation in Kenya, DDT insecticides in Tanzania). Many products are imported or allowed to be produced locally though they throw workers and artisans out of work before alternative jobs are available. Often the new product is more foreign exchange dependent than the earlier local substitute. Thus the investment intensifies, rather than reduces, import dependence. For instance, Kenya makes plastic baskets for the local market even though hundreds of women weave sisal baskets for their livelihood; in fact an imaginative variety of splendid sisal baskets are exported. Kenya also makes many other inappropriate products: plastic chairs that throw carpenters out of work, throwaway pens that require additional imported raw materials to make replacements, fibre glass tables and chairs requiring imported resins, and high rise buildings needing imported elevators and large structural steel sections. Even plastic 'cheaters' to create a hidden empty space at the bottom of skin cream containers are allowed in Kenya though prohibited in most developed countries. Other products such as fancy vs ordinary soap, leather vs plastic shoes, hammer-mill vs sifted flour, and cotton vs synthetic textiles have strong arguments, pro and con, because differences between products in quality,

import dependence, and labour demand give rise to trade-offs between potential beneficiaries (F. Stewart 1979; Huq 1977; Langdon 1981a, 1981b and 1984).

Developing countries also often permit a wild proliferation of makes, models, and designs of essentially the same product. Even when this makes it impossible to produce locally the items or their components due to an inability to achieve economies of scale, countries often fail to enforce any standardization (Suttcliffe 1971:227). For instance,

Kenya actually assembles more than 90 models of trucks and buses and has at least 60 makes of second cars in about 200 models on the streets. Kenya also imports more than 260 models of water pumps and obtains tractors from at least 15 countries.... so long as the chaos of so many models is allowed, Kenya's foundries and metal engineering industries will be crippled. (Coughlin 1983: 16-17)

Zimbabwe also suffers 'wasteful duplication' with

. . . fourteen companies making pharmaceutical products, thirteen household paints, eleven toiletries, ten refrigerators, nine wet batteries and four batteries. (Stoneman 1982:284)

Despite the large gains from choosing more appropriate products and restricting unnecessary product differentiation that inhibits industrialisation, few developing countries even recognize these problems in their official statements. Still fewer have a systematic policy to control inappropriate products.

The direct and indirect implications from using a more appropriate product are often large and dramatically better and - - what is important to policy makers - - easily understood. For instance, McBain (1975: 832) concluded in a study of foot-wear manufacturing in Ethiopia that:

. . . The choice of footwear type is a more important determinant of factor intensity than the choice of technique for a given kind of shoe