SECOND CARNEGIE INQUIRY INTO POVERTY
AND DEVELOPMENT IN SOUTHERN AFRICA

A food stamp programme
for South Africa

by

Peter Moll

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A food stamp programme for South Africa

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1. Introduction

South African politicians are wont to note with satisfaction that South Africa is one of only ten food exporting countries in the world. Yet the newspapers regularly carry reports of abject poverty and malnutrition in the homelands and the platteland (e.g. "The cruel Karroo", Cape Herald 2 and 9 February 1984). Other Third World countries also demonstrate their ability to export food despite -- or because of? -- gross inequalities in domestic consumption. For instance, in the last decade Brazil has become the world's major soya exporter, but the changed allocation of land resulted in steady rises in the price of beans, a staple diet of the millions of the desperately poor in the Northeast. Data of this kind leads many economists to believe that solutions to the malnutrition problem are to be found in the area of redistribution rather than in increased food production. However, in the absence of instruments for swift wealth creation and large-scale redistribution, many governments have resorted to food demand schemes as a stop-gap measure to reduce hunger.

In this paper I shall consider some of these schemes and compare them with the food subsidy schemes in South Africa. Then I shall propose and motivate a food stamp scheme as a short-term solution to the problem of hunger in South Africa.

2. The extent of malnutrition in South Africa

Who are the main victims of malnutrition in South Africa? As in other parts of the world where hunger is rife, the evidence suggests that in South Africa it is children and the elderly who
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are nutritionally most at risk. The at-risk children may be divided into two broad categories. The first is children under the age of two years, for whom malnutrition is often fatal. Their ill-health is closely related to that of their mothers who frequently suffer from malnutrition themselves. Thus no solution to malnutrition among children under two would be complete without attention to pregnant and nursing mothers as well. The second category is children over the age of two, for whom the consequences of malnutrition tend to be lack of energy, lack of motivation and interest when at school, susceptibility to (sometimes fatal) disease, and perhaps also brain damage.

The other group affected by malnutrition is the elderly. Although less research has been done in this area and there is consequently less information available, there is evidence of considerable malnutrition among black persons over the age of sixty in rural areas (cf. work by Nomsa Ndaba on Kwazulu adults, for the 1984 Carnegie Inquiry).

How bad is malnutrition in South Africa? In 1975, according to Dr. G.S. Fehrson's conservative estimate, between 15 500 and 27 500 children under five died annually from malnutrition in South Africa, including the 'homelands'. Virtually all of these children were African or 'Coloured' (Fehrson, 1975). More recently Dr. J.P. Kotze of the Department of Health has estimated that, not counting children in the homelands, some 136 000 children under fifteen are less than 65% of expected weight for age and thus in grave danger of infection and death (in Vergnani, 1983:16-19).

Kotze obtained his figures on the assumption that between 1 and 3% of children under the age of fifteen were malnourished. In fact
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His malnutrition rates are approximately the same as those observed in other Third World countries. For the sake of clarity his figures are recorded below.

Table 1. The percentage of South African children under fifteen years under NCHS weight-for-age levels (1981 cross-section data)

<table>
<thead>
<tr>
<th>% of expected weight</th>
<th>Classification</th>
<th>'Coloured'</th>
<th>'Indian'</th>
<th>'African'</th>
</tr>
</thead>
<tbody>
<tr>
<td>75</td>
<td>Second degree Gomez</td>
<td>16.74</td>
<td>16.16</td>
<td>12.44</td>
</tr>
<tr>
<td>65</td>
<td>Seriously disadvantaged</td>
<td>3.13</td>
<td>2.42</td>
<td>1.37</td>
</tr>
<tr>
<td>60</td>
<td>Third degree Gomez</td>
<td>0.77</td>
<td>0.61</td>
<td>0.32</td>
</tr>
</tbody>
</table>


Children who fall into Gomez' second category are thought by the WHO to suffer from moderate protein energy malnutrition. It appears that some 12-16% of black South African children are in this group. Between 1.37 and 3.13% are below 65% of expected weight for age and are hence in grave danger of disease and death, and between 0.32 and 0.77% fall into the third Gomez category of less than 60% of expected weight for age, whose health status is even more risky.
It would be superfluous to list the results of other smaller-scale studies since detailed summaries of scores of these have been published elsewhere, and they generally confirm Kotze's findings (e.g. Vergnani, 1982:20-22). If Kotze errs, it is on the side of optimism. In rural areas like Kwazulu and Ciskei matters seem considerably worse (e.g. Thomas, 1983; and Mariana E. de Villiers, 1980). Thus if one allows for the fact that 48% of the male and 57% of the female African population is estimated to live in the 'homelands' where, because of the migrant labour system, children form a higher than average proportion of the population and where their nutritional status is lower than in other parts of the country, then it is clear that several hundred thousand children are seriously at risk.

3. Food availability

It might be thought that the reason for this malnutrition is that there is simply not enough food produced in South Africa to go round. Calculations of the overall daily per capita availability of calories show that this is a very incorrect assumption. Using conservative estimates it can be shown that in the average year South Africa produces enough food to supply every man, woman and child in the country with more than twice the recommended daily allowance (See Appendix 1).

4. Solutions to the malnutrition problem

The malnutrition problem should be addressed first of all on the macroeconomic level. Since the prime cause of malnutrition is not ignorance but poverty, the obvious solution is to ensure that
breadwinners are earning enough to provide for the needs of their families. This was one of the chief recommendations of the Carnegie Commission of the 1930's, the Gluckman Commission of 1943 and the Du Plessis School Feeding Commission of 1951, and it proved to be effective in respect of the white population. The paediatrician Prof. JDL Hansen observes that rising standards of living among the "coloured" population of Cape Town have led to a much reduced incidence of infant morbidity due to malnutrition (personal communication).

Thus the call to end malnutrition becomes a call for accelerated income growth. Four of the six Third World leaders in combating malnutrition -- China, Vietnam, Taiwan and Cuba, have done so by mainly non-nutritional means, viz. rapid economic growth with attention to distributional questions in Taiwan, and fundamental social change in the rest (cf. "Nutritional questions in Bangladesh", Lancet (1979), p 911). The other two -- Sri Lanka and South Korea -- have invested enormous sums of money in direct nutritional programmes.

The policy goal of income growth in the urban areas implies, furthermore, a search for development policies to increase employment levels, and to achieve this goal, to increase investment in education and training. In the "platteland", income growth will require increased attention to education to prevent young black people from becoming "trapped" on white farms; industrial policies to provide employment in small-town areas; and minimum-wage legislation to protect incomes of wage labourers. Finally, black rural areas will need large injections of finance because of gross deficiencies in both infrastructure (which is fundamental to viable cash-crop farming) and in educational

While pursuing these objectives one common pitfall has to be avoided. That is the solution, often tempting to urban policy-makers, of setting low producer prices for agricultural products, so as to provide cheap food in the towns. Such over-hasty attempts to promote industrial growth can be disastrous in the long run (cf Lipton, 1975; Peterson, 1979). The view is increasingly accepted that agricultural growth is an important precondition for general economic growth (Mellor, 1966). An example of an urban-focused development strategy is that of Argentine. Despite favourable agricultural conditions that country’s per capita agricultural output was less in the seventies than before World War II, due to input price increases without corresponding producer price increases (Cavallo and Mundlak, 1982:13). It seems clear that for income growth in the agricultural sector, stable and sufficiently high crop prices are essential.

However, it is unlikely that a development process focussed on rapid income growth would prove sufficient to eliminate malnutrition in the short term, and it is this that suggests the need for a food demand programme.

First, incomes of the very poor might not rise with sufficient rapidity. Then, even if improved agricultural technology induces shifts in the supply curve, and reduced prices, the potential of development for improving nutritional status may be lost (Pinstrup-Anderson, 1976:142). Berg did projections on more and less optimistic assumptions about growth rates and food prices to show that for India, Pakistan, Bangladesh, Brazil and Morocco the growth process alone would not, in the space of the next two
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decades, diminish the absolute number of the malnourished (Berg, 1981b 17-23).

Second, the rise in incomes of the poorest might be too small to make any significant impact on their nutritional status. This depends on the kind of development offered. Unless special attention is given to distributional questions, development policies focussed on increasing production do not guarantee improved nutrition to those who most need it. Development schemes, whether urban or rural, tend to play into the hands of the slightly better off and the slightly better educated; the most disadvantaged, and especially, in the case of rural development, the landless, may remain where they are.

For instance, McCarthy and Taylor's general equilibrium model of the Pakistani economy showed that increasing the fertilizer subsidy by 50% would raise crop output and result in a real increase in GNP. However, calorie intake by the rural poor would go up only 0.78% (1980).

Third, development may itself be the cause of malnutrition. This can occur in a number of ways. First, the "non-copers" in the development process may be worse off than before: the unemployed, single mothers, the elderly. Second, the transition to cash-crop farming may raise incomes but nutrition may suffer because subsistence items then have to be purchased. For example, Hernandez showed that an extensive agricultural programme in Mexico raised production sixfold in 13 years but resulted in no improvement in food intake of the poorest 30% of the peasants, and only a slight improvement in the incidence of second and third-degree malnutrition (Hernandez et al., 1974:286,289). Third, the dislocation caused by some forms of development may
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have disastrous consequences for nutrition. For example, the Brazilian Pro-Alcool programme for the manufacture of fuel from sugar-cane has raised the demand for land in the North-East resulting in the expulsion of thousands of peasants -- which, because of urban unemployment, has had serious nutritional consequences (Bueno, 1980:20,35-37; Blardone, 1983:23). Lappe and Collins have supplied many more examples of the casualties of the development process (1980).

Unfortunately not much is known in South Africa of the precise nutritional consequences of government development policies, or of specific development projects. However, evidence from the rest of the world suggests that the development tool alone is inadequate as a strategy against malnutrition. This consideration has led to the adoption of expensive food demand schemes in many Third World countries.

5. Food demand schemes.

Modern governments almost without exception regard adequate nutrition as a policy goal for its own sake. Food subsidies have received renewed attention from the development community, because of their potential for raising consumption by the poorest and simultaneously raising demand. At the same time they have been criticized for their fiscal costs which tend to increase rapidly; their agricultural disincentive effects; and their tendency to build up a constituency which leaves the government little room for fiscal maneuver.

I shall briefly examine food demand schemes in two third-world countries in order to place the South African malnutrition problem
in a broader perspective. First, Sri Lanka's rice ration is an example of a macroeconomically important third world subsidy scheme; second, the Mexican milk distribution scheme is an example of a carefully targeted and macroeconomically unimportant scheme.

5.1. Sri Lanka rice distribution

The most regularly quoted example of a third world food subsidy scheme is that of Sri Lanka. This is because of its large macroeconomic implications, and, in the opinion of some researchers, its effectiveness in delivering cheap nutrition and hence success in achieving health goals.

A ration scheme offering rice at heavily subsidized prices was in operation from 1942 to 1979. It was available to the whole Sri Lankan population. Its expense rose steadily to the point where, during the seventies, the subsidy amounted to between 15% and 24% of the state budget.

Had the subsidy been worthwhile? The data reveals a mixed picture. On the one hand, the ration provided 20% of caloric consumption and 14% of income for the lowest income groups (WBDR 82); and only 3% of the population consumed less than 1900 kcal per day (Isenman, 1980:241). On the other hand, most of the ration was substituted for open market purchases, i.e. it acted as an income supplement. This tendency to substitution was naturally less among the lowest 10% of the income distribution, for whom daily energy consumption was increased by 115 kcal. In sum it appears that it was an effective device of income redistribution, but that its nutritional effects were limited to the very poor (cf. Gavan and Chandrasekara, 1979).
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In view of the high costs the state decided in 1979 to limit its coverage to people with incomes of less than Rs300 (US$20) per month, i.e. the lower half of the income distribution. This was effected by means of a quarterly means test and the distribution of food stamps to families in amounts depending on household size, children's age, and income. The stamps were exchangeable for ten major foodstuffs, of which rice was the most important. As a result the cost of the subsidy dropped by 40% (Taylor, 1980:85) and settled at some 11-14% of the budget (WBDR 82).

5.2. Milk distribution in Mexico City

The Mexican government imports powdered milk and sells it at a subsidized price after reconstituting it. The programme operates only in Mexico City and involves milk distribution solely. Eligibility is determined on the basis of a brief socioeconomic survey done by a social worker in consultation with the community. Eligibility depends on a combination of demonstrated need, number and age of children, number of elderly in the family, and income. Children under the age of 12, lactating and pregnant mothers, and the elderly are all eligible. The family is awarded 0.5 litre of milk for each eligible member. For a family of 6 or less, a monthly income of about US$442 was normally considered to be the upper cutoff point for reception of benefits in 1980. Beside these normal criteria, any person is admitted who can show medical certification of need.

The cost of the program was small in budgetary terms. In the mid-seventies when annual sales were around 200 million litres, the total subsidy was US$6 million, viz. about 0.008% of GDP (cf. Yearbook of National Accounts Statistics (United Nations: 1980)).
Total costs per litre in 1977 were M$2,01, while the sale price was M$1,25 making the subsidy M$0,76 or US$0,03. Subsidized milk sales in 1975 were M$330 million, approximately one-quarter of all milk sales in the city.

Did the nutritional and redistributional effects justify this expense? A study completed in 1978 showed that both the families of milk programme recipients and the control families had nutritionally adequate diets. Milk programme families consumed more calories and protein from milk than did nonmilk programme families. However, regression analyses indicate that this did not mean that the milk programme raised overall calorie and protein consumption. Rather it permitted a wider range of choices for consumption. Thus the milk programme provides an economic benefit for poorer families, but not necessarily a nutritional benefit. On the other hand, the milk programme does seem to have a valuable impact on the family food chain, since children of recipient families consume more milk than children of the control group. Anthropometric measurements showed that participation in the programme did not have any significant effect on weight or height of the children (USAID, 1981).

5.3. Other alternatives

Other food demand schemes include the following. The USA has a food stamp system whose fiscal cost amounted to $15,4 billion in 1982 (New York Times, 19.7.1983). Colombia has a food stamp arrangement for lactating and nursing women, and women with small children. Egypt has one of the most extensive food subsidy and rationing schemes in the world. The Egyptian bread price, for
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example, has remained unchanged -- in nominal terms! -- for more than twenty years. Several Asian countries, notably Kerala State in India, have dual market mechanisms for the cheap distribution of foodgrains: after compulsory levies at set prices to the state are satisfied, farmers sell the rest of their produce on the open market at uncontrolled (and considerably higher) prices. Distribution by rationing occurs through fair-price shops at subsidized prices; further quantities are bought by consumers on the open market.

The literature indicates that general food subsidies exhibit considerable leakage to better-off consumers. Indeed some appear to have been created by and for the urban middle class, like the Bangladesh rationing scheme (Karim et al., 1980:61,62). However, it is clear that a combination of foodstuff choice, rationing and targeting by area can exclude leakage to the better-off to a large degree. For instance, the subsidized foodstuff can be an inferior good, like the glutinous wheat in Pakistan, which ensures that better-off consumers prefer to buy wheat on the more expensive open market. Both general food subsidies and carefully targeted schemes (like the Colombian food stamp scheme and the Mexican milk distribution scheme) tend to induce purchases of higher quality food and sometimes, purchases of non-food items. However, it is important to note that these food demand programs do not replicate the effects of direct income transfers. Consumption studies show that subsidy income influences food demand more than general income (e.g. on Sri Lanka see Gavan and Chandrasekara, 1979:41ff; and on USA see West and Price, 1976:728f and Boehm and Nelson, 1978 a and b).

In general food distribution schemes tend, without careful
targeting, to have stronger redistributional than nutritional effects. Of course income redistribution may be a policy objective in its own right. The impact of food subsidies upon general welfare may be considerable, as in the case of the Sri Lanka and Pakistani schemes. For instance, McCarthy and Taylor estimated with the use of a general equilibrium model that the removal of the wheat subsidy and the associated decrease in real purchasing power would result in a drop of 2.6% in real GNP. At the same time the urban poor would suffer an overall drop in calorie consumption of 5.5%, and the rural poor a drop of about 2.87% (1980:118).

6. Subsidy schemes in South Africa

Recently R100m or more has been spent yearly on a bread subsidy paid to bakeries, and R50m or so has been spent yearly on a maize subsidy paid to farmers (Abstract of Agricultural Statistics 1982: 118). The reason for maintenance of these programmes follows from prior intuitive beliefs (eg that consumer subsidies improve the nutritional status of lower-income groups) rather than from documented evidence for their effectiveness in achieving nutritional goals. Even less do they rest upon consideration of alternatives which have achieved success elsewhere.

6.1. The maize subsidy

On what grounds may the maize subsidy be justified? The evidence suggests that it can be justified on redistributional grounds. Maize is an inferior good consumed almost exclusively by lower-income Africans. Since the tax share of the latter group is low,
the maize subsidy represents a net income transfer to Africans.

Whether the subsidy is justified on nutritional grounds is a more complex question. It has been suggested by Harrison that a lower maize price "can well result" in less maize being consumed with the saving in cash being used for wheat products. Conversely he suggests that a higher maize price "is likely" to result in less purchases of wheat in order to maintain consumption volume (Harrison, 1982:76). If this is so the maize subsidy has served redistributional ends, and has been a boon not to maize but to wheat farmers. However, its nutritional effects are somewhat reduced because the subsidy has resulted in purchases of more expensive food items.

At present there is no way of telling whether, or to what extent, Harrison's suppositions are correct. Some figures for income elasticities are available, but own-price elasticities for maize and wheat products are not; cross-price elasticities of these two categories have not been calculated, nor have cross-price elasticities of other food products with respect to maize. Finally, elasticities are not available to estimate changes in nonfood consumption after changes in food subsidies.

Price control makes estimation of all these effects difficult because most prices have changed gradually in tandem with the secular inflation rate. There is not enough variation by region or over time for easy calculation of a complete demand system like those of Strauss (1982) in Sierra Leone, and Timmer and Alderman (1979) in Indonesia. Furthermore current purchasing patterns are probably deeply ingrained, built on long-term expectations of monotonic price increases in all food products, and may hence be responsive only to large and sudden price changes.
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A sophisticated model like the Rotterdam system or the Almost Ideal Demand System of Deaton and Muellbauer (1980), done for, say, the four categories wheat products, maize products, meat products, and other food, using time series per capita data, would be the best way of estimating the effects on consumption of altering subsidy allocations. However, per capita data for these products are not commensurate in South Africa as they are in the US or Europe. Maize is consumed almost exclusively by Africans while consumption of other foods is spread rather more evenly by race and area. A model of this kind is therefore unlikely to yield accurate results like those of Deaton and Muellbauer (1980), Blanclforti and Green (1983), Barten (1969), Mann (1982) and others. Only at a high level of aggregation will results from the available statistics be significant.

We are therefore left with the results of research performed in other countries. On the basis of this (cf. 5.3 above) it is probably correct to say that the subsidy has resulted in greater calorie consumption than a direct income supplement would have. The subsidy has therefore served nutritional objectives. In view of the fact that many of the beneficiaries of the maize subsidy are very poor, it is probable that the leakage of the subsidy to higher-priced foods and nonfood is smaller than is the case in the studies by the US and Sri Lanka researchers cited above.

To sum up, the maize subsidy can be justified on redistributional grounds and, on the assumption of similar consumption patterns between South Africa and other countries, may also be justified on nutritional grounds.
6.2. The bread subsidy

The bread subsidy has probably always represented a dual income transfer within the white group. First, by raising the demand for wheat it has transferred income from taxpayers in the upper-income strata to farmers. Second, it has also transferred income from upper-income whites to lower-income whites. In its early history the lion's share of the benefit was probably drawn by the urban white working class. The bread subsidy may also have permitted lower wages and thus acted in the interests of employers. Thus wheat availability was made to support industrialization without strain on the balance of payments or the price-level (cf. Rees 1982:177).

However, demographic and taste changes in recent years have altered the effect of the bread subsidy. Blacks have moved from rural to urban areas and their eating patterns have shifted from maize to bread for reasons of both convenience and preference. It has been shown that in recent years the bread subsidy represents a net income transfer from white (i.e. middle- and upper-income bracket) people to black (i.e. middle- and lower-income bracket) people and that after taking tax rates into account the subsidy can marginally be justified on grounds of income redistribution and nutrition (Moll, 1983). This line of argumentation suggests that if protection of wheat farmers is bound to continue despite its inefficiency (cf. Rees, 1982:178), then there is a prima facie case for retention of the bread subsidy on nutritional grounds.

However, the bread subsidy is not the most effective means of income redistribution or nutritional delivery. First, the average white household benefits more in absolute terms than the
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average African household (Moll, 1983). Second, it is difficult to justify the reception of subsidy benefits by middle-class black people on income redistributional grounds. Third, even among very low-income blacks those with more money benefit more from the subsidy because their food purchases are higher, i.e. the subsidy tends to reinforce inequity rather than compensate for it.

7. A food stamp programme for South Africa

A food stamp programme could be a more effective way of accomplishing both income redistributional and nutritional aims.

A food stamp programme can be targeted fairly accurately to the nutritionally at risk and most indigent groups by a combination of personal entitlement requirements, income conditions and benefit selection.

As far as personal entitlement is concerned, a ranking of eligible categories of recipients may be constructed. In the South African context three groups are readily identifiable from the point of view of nutritional need. First in line are single pregnant and nursing women, and single mothers with small children. To these may be added equivalent married women. These are among the groups eligible for food stamps in Colombia. If one of the goals of a nutrition programme is to eliminate deaths from malnutrition then the needs of pregnant and lactating mothers provide the strongest case for the introduction of a food stamp programme since most deaths from malnutrition in South Africa occur between the ages of a few weeks to two years.

Second most deserving in terms of nutritional need are a group composed of the elderly, the unemployed, and individuals who have
been medically certified as nutritionally deficient. The latter subgroup is among those eligible under the milk distribution programme in Mexico City, and for the paupers' benefits scheme in South Africa.

Third in line in terms of nutritional need are all other people who fall below a specified income level. Their entitlement is justified mainly on grounds of income redistribution, increased working productivity and increased concentration at school—beside the obvious moral arguments relating to malnutrition.

As far as income conditions are concerned, income ceilings may be set for varying sizes of household; any families falling below those income levels would be entitled to food stamps to a certain value. The United States and Sri Lankan systems are run on this basis. West and Price found substantial economies of household size in food consumption in their Washington State study, which suggests that a sliding scale be selected for household size to determine benefits in food stamp programmes (1976: 728,729). In order to avoid arbitrary selection of an income cutoff point, a "food ratio poverty line" can be constructed based upon observed Engel functions, which allows specification of an income threshold below which a family is likely to be undernourished (cf. van Praag et al., 1982). Food consumption is thought to be dependent, not on current but permanent income; West and Price have done research which suggests that for this reason the amount of assets owned should be a criterion in determining eligibility in the programme (1976: 729; cf. Friedman, 1957).

Finally, benefit selection can be a means of targeting food stamps to the needy. By restricting the food stamp system to certain selected foods, leakage to higher-income consumers can be
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controlled. A good example is the wheat ration in Pakistan. Because the wheat distributed is of inferior quality, the well-off have little incentive to obtain it, but it is of great nutritional importance to the very poor.

7.1. Advantages of a food stamp programme

The strongest quality of a food stamp programme is that it can be sharply targeted. It may be superior to a direct cash transfer for its ability to redistribute income to those who need it most, namely children. It is also superior to a direct cash transfer from a nutritional point of view in the sense that it induces less spending on more expensive foods and non-food (cf. 5.3 above). If administrative procedures are efficient, as in the Mexican milk distribution scheme, a means test can quickly be conducted, limiting leakage to nonneedy groups to a minimum. The amount of leakage arising from false statements at the means test will diminish with greater community participations as has been the experience in the Mexican scheme. In any case this leakage must be measured against the massive leakage arising from a general subsidy on a preferred foodstuff like bread. The social stigma of participation in a welfare programme is likely to counteract the temptation to enter by underreporting income. Finally, it must be borne in mind that all nutritional programmes entail substantial leakage (Taylor, 1980:106).

A second quality of a food stamp programme is that its administrative costs are easily controlled and are not exorbitant. The first administrative cost is the means test. The second is a motivation/outreach section whose task is to identify potential participants with the aid of the community and to help them
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through the bureaucratic processes. For instance, social workers termed 'promotoras' do motivation work for the Columbian scheme. The ability of a programme to draw in people who are entitled to benefit may be crucially dependent on community participation. Thus in the Mexican scheme the motivation/outreach function is performed partially by consultation with the community.

The third administrative cost is an ongoing research section to assess its effectiveness and suggest improvements. The larger the size of the programme, the greater the need for careful research. As can be seen in the bibliography, a great deal of research has gone into the American food stamp programme.

Unlike a general subsidy arrangement whose costs may escalate out of sight, the coverage and hence costs of a food stamp programme can be controlled by manipulation of entitlement conditions. Unlike direct medical intervention programmes like the WIC in the USA, food stamp programmes do not require a highly-skilled and hence costly secretariat because they tend to be self-administering. Their ability to let existing market channels carry much of the burden of administration makes them more attractive to economists than other schemes.

7.2. Limitations of a food stamp programme

A food stamp programme depends on a reasonably efficient bureaucracy for accurate assessment of wages, employment status and family size and for recording residential addresses. Schemes in other countries have demonstrated a fair record of bureaucratic efficiency but graft is a recurrent problem even if tiny in comparison with the total programme expense.
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Food stamp and other target group oriented programmes are, because of their bureaucratic aspect, frequently faulted for discrimination in favour of the young, the mobile and the urban. That these three factors set limitations on the reach of a food stamp programme is self-evident; but these are limitations and do not call into question its redistributinal and nutritional capabilities.

Another limitations of a food stamp programme is that the very poorest remain untouched. Agricultural and food demand schemes throughout the world tend to follow this pattern. The very poorest do not have the wherewithal to satisfy the bureaucratic rage for order; they are without a fixed place of residence, or they have no papers, or they are illiterate, or they do not know of the availability of a programme, or they would not exhibit the kind of regularity required for participation, or they live in faraway rural areas without transport, or their minds have been affected by alcohol, or they have lost all motivation to be part of 'our' society, or a combination of these. It is for groups like these that a motivation/outreach department becomes an essential component of a food stamp programme.

7.3. Political feasibility of a food stamp programme

Improving the access of the poor to adequate food intakes typically requires high political commitment.

The current subsidy arrangements are guaranteed by the strength of the wheat and maize farming lobby and by the fact that in the case of bread, the white consumer stands to benefit. The political alignments would be changed if a food stamp programme replaced the
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wheat subsidy. The wheat farming lobby would lose because of the contraction of demand; other industries would gain in turn; and the average white urban consumer would get nothing. Powerful financial interests make the prospect of improvement of the existing subsidy system look bleak.

On the other hand, strong arguments can be made on nutritional grounds for the introduction of a food stamp programme for pregnant and nursing mothers, mothers with small children, and medically certified individuals. It is self-evident that such a programme would save lives and diminish morbidity. It would be macroeconomically unimportant. The case for such a programme would be at least as convincing as that for the introduction of the subsidised skim milk programme, the PVM scheme and the paupers' benefits scheme. Offtakes would be higher because of the greater choice and variety offered. A food stamp programme for these two categories of recipients is feasible even under present political constraints.

The accessibility of food stamps in urban areas could be an incentive for urban migration in the absence of equivalent benefits in the countryside. This would probably be the strongest objection by politicians under present political arrangements. But such an objection is based on a number of premises: that the rural areas are not already overcrowded; that there are not already massive inducements and to spare, mainly in the form of higher wages, to moving to the cities; and that migration would do the urban areas economic harm. All of these premises have been questioned by, among others, Simkins (1983).

The inclusion of the unemployed in a food stamp programme would be difficult under present political constraints because of the
belief, popular among the white electorate, that unemployment is due to laziness. Besides, white voters would gain little from it. Now a strong argument can be developed for the inclusion of the unemployed because unemployment is chronic in South Africa at present and reluctance to seek work is not the constraint upon higher employment levels. Yet opponents of the scheme would object that a food stamp programme would decrease the inducements to seek work; the reply that society should not use malnutrition to induce job-seeking might not be convincing to the white electorate which is little affected by unemployment.

The argument for a macroeconomically significant general food stamp programme for low-income strata for the sake of increasing productivity and concentration, though intuitively clear-cut, is unlikely to be convincing at present because of inadequate South African data on the financial implications, and because of chronic unemployment. Income redistributional and humanitarian motives would have to wait for a significant extension of the franchise -- as is remarked in India, "one rupee one vote".

In respect of the elderly, the first step which needs to be taken at present is reform of the pension payment scheme. This includes streamlining and speeding up of the process on the day of payment, racial equalization of the benefits, and making the payments monthly instead of bimonthly. Under present arrangements many elderly blacks have foodless days toward the end of the second month.

8. Alternative models

A food stamp programme could probably be efficiently run in urban,
small-town and 'platteland' areas. Dependent as it is on adequate registration procedures it would be difficult to obtain sufficient coverage in 'homeland' rural areas. Determination of income levels of subsistence producers is difficult and their wide dispersion and inaccessibility would make administration erratic. Thus alternative models must be developed for nutrition in rural areas. This becomes imperative when technological change results in unemployment, as occurred in the Western Transvaal in the seventies (de Klerk, 1983).

One model would be to step up the subsidy on bread in rural areas or perhaps only in the most deprived areas. Simultaneously a limit would have to be set on amounts purchased per visit to prevent unscrupulous traders from taking advantage of the arrangement. Alternatively this could be done through a ration book scheme. Ration schemes have proved effective in coverage of rural areas in Egypt, Pakistan and elsewhere, since address and family size are not difficult to ascertain. Rural people in South Africa have reasonable, even if not easy, access to shops, ensuring that a ration scheme would have near-universal coverage. This would not induce a wasteful shift of tastes -- Bureau for Market Research data indicates that household budget shares of bread are more or less equivalent in rural and urban areas. One of the reasons for increased bread consumption in rural areas is the rising cost of fuel which makes lengthy cooking of maize and beans prohibitively expensive.

A second model would be to step up the subsidy on maize meal; this should only be done after assessing its potential nutritional impact because of the above-mentioned problem of inferior status, and because producers could be tempted to maintain consumption
constant and divert their own maize output for animal feed.

A third model is a subsidy/ration scheme for dry beans, which, beside being a preferred foodstuff of African people, is highly nutritious and is commonly eaten with ground maize as "umngqusho". Bean price hikes have lessened consumption and affected nutritional intake since beans tend to be replaced by more maize.

A fourth model is to have hospitals and clinics in rural areas administer food stamps to pregnant and nursing mothers. This arrangement would have the side benefit of inducing greater regularity in clinic attendance.

9. Areas for future research

It is instructive to page through issues of South African Journal of Economics and Agrekon over the past few decades. As I have tried to show, malnutrition is fundamentally an economic problem, but it rarely features as a topic for research and policy-making in these South African journals. Favourite World Bank topics like food subsidies, the consumption patterns of low-income consumers, modelling of small production systems to assess the effects of agricultural policy on nutrition levels, etc., have scarcely been touched. Some articles are carried on related topics like land tenure systems, agricultural development in homeland areas and irrigation schemes (Agrekon); and on unemployment and CPI calculations (SAJE). But the research done tends to be producer-directed with little or no focus on low-income consumers. Most of it tends to be of value to the large-scale farmer and the agricultural marketing boards (Agrekon) or to industry and finance (SAJE). For instance, when estimates
of consumer demand are done, the equations developed are functional to policy decisions and hence profitability of the Boards (Vosloo and Groenewald, 1969; du Toit and Doeckel, 1975; Ortmann, 1982; Doeckel and Groenewald, 1970). I shall therefore conclude this paper with some suggestions of directions for future research.

The economist in South Africa has little data available to tell the effect upon nutritional status of alternative development policies, or food demand schemes, or income redistribution policies, or even specific agricultural or other development projects. The first important tool needed is a matrix of income-class-specific income and price elasticities.

Little consensus has been reached by South African economists on even such basic questions as income elasticities, viz. the differences between Contogiannis (1982:130), Black (1977:400f), Wijnholds (1970: Table A.6), and my unpublished results. More sophisticated techniques like those of Barten (1969), Deaton and Muellbauer (1980) and Blanciforti (1983) should be attempted for specific food groups, taking the problem of incommensurability into account. The next step, as Contogiannis has emphasized, is the attempt to reconcile the results of aggregate per capita studies with those of budget studies (1982:134).

A sufficiently detailed budget study of food consumption behaviour, done in different regions to take advantage of the little price variation that does exist in the South African market, and done before and after a significant price shift (e.g. imposition or lifting of price control on an important budget item) may yield valuable results like those of Strauss (1982), Timmer (1979), Gray (1982), Bennagen (1982), and Dixon (1982).
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Unfortunately Bureau for Market Research data, while useful for finding income elasticities, is not geared to estimation of price effects. A strong political commitment to increasing the calorie intake of the poor would require regular sources of information on consumption, like the massive SUSENAS surveys in Indonesia and the National Household Expenditure Survey (ENDEF) done by the Brazilian Geographical and Statistical Institute. Aggregate private consumption statistics need to be updated on a regular basis. Ideally they should be published as a matter of course by the South African Reserve Bank or other government instances, ensuring commensurability over time, and without repeated 'adjustments'. In this way long term trends in food consumption behaviour can be discerned.

As Berg observes (1981b:121), most development activities influence nutritional status in some way. In South Africa little is known of the size or even the direction of the nutritional influence of specific large development projects. Initially a careful investigation should be done of the food consumption and nutritional status effects of one selected project, perhaps in a rural area for better definition of the group under study. Depending on the results, investigation of the potential nutritional effects should regularly be undertaken when planning a development project, to avoid the pitfalls pointed out by Hernandez (1974). For instance, if better marketing channels were provided in black rural areas to facilitate cash crop farming, a nutritional impact study should be performed to test the effect on families and children of crop-switching.

A general equilibrium model making use of input-output tables should be constructed to model the macro repercussions (business
receipts, household incomes, employment, GNP etc) of revised food policies in South Africa, along the lines of McCarthy and Taylor (1980) for Pakistan or Nelson and Perrin (1976) for the USA. A linear expenditure system or other demand system can be integrated into the model to test consumption and nutritional status effects.
The works of Fox (1966: Tables 44, 55, 16, 20, and 38) and Davidson et al. (1975: 191-243) were used to find calorie values of agricultural products. Total production statistics of all agricultural products in South Africa excluding sugar, as well as amounts of fish caught, were taken from the Abstract of Agricultural Statistics 1982 and from South African Statistics 1982. Population figures were also taken from the Abstract, and excluded Transkei, Venda and Bophuthatswana. Total kilocalories were 78 359 billion, where the contribution of maize was 51 680 billion, i.e. 66% of the total. Per capita daily energy availability was then 9030 kcal. If, in the case of foodgrains, marketing board receipts are used instead of total production figures, per capita daily energy availability was 6684 kcal, more than double the recommended daily allowance of 2500-3000 kcal. If the smaller intake of children were taken into account the excess of production over RDA would be still greater. Timmer et al. (1983) indicate, incidentally, that in most countries production is in excess of RDA.
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SALDRU
School of Economics
Robert Leslie Building
University of Cape Town
Rondebosch 7700