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"HOUSEHOLD PURCHASING-POWER DEFICIT" A MORE OPERATIONAL INDICATOR TO EXPRESS MALNUTRITION

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Since poverty is an important underlying cause of malnutrition, attacking poverty's determinants will be the only way to overcome malnutrition as a social problem.

Expressing nutritional deficiencies as *purchasing-power deficits* appears to be of greater operational relevance than the alternative of expressing malnutrition in terms of nutrient deficits, as is done classically.

Consumer expenditure best defines poverty and therefore, it is postulated that it also best predicts nutritional status, given the high correlation of the latter with income. It makes sense then, to express nutritional deficiencies in the units of its primary determinant (money) if one genuinely desires to improve nutrition and combat poverty.

Details on how to arrive at this new proposed indicator of malnutrition are given, and its potential uses and/or abuses in development planning are discussed.

KEY WORDS: Poverty, Planning, Economics, Purchasing Power, Nutrient Deficiency, Income, Consumer Expenditure, malnutrition.

The problem with many nutritionists is that, although they recognize poverty as the main cause of world-wide malnutrition, they do not focus their implementation strategies on how to *directly* attack this underlying problem. Often this lack of focus is related to the fact that they feel such efforts extend beyond their professional control, and if they work in the international arena, they feel that political and professional risks are high. (Chossudowsky, 1975).

Those who have analyzed the world nutrition problem would agree that redistribution of wealth and the consequent increase in purchasing-power of the needy masses is a necessary, though not sufficient, solution to world hunger (assuming that income increased faster than food prices). In addition, various technical interventions tried so far, such as food supplementation and fortification, nutrition education and other programs, did not and do not provide long range solutions, even though some positive redistribution *side-effect* may have occurred.

There are two alternative approaches to analyze and improve the problem of malnutrition; these alternatives can be graphically presented. (See Figures 1 and 2).

According to the Radial Approach (Figure 1), malnutrition is only one of the manifestations or masks of poverty. Poverty is also characterized by ignorance, lack of sanitation, poor health, high infant mortality and many other factors. If malnutrition is attacked by intervening on each isolated determinant as those mentioned above, some

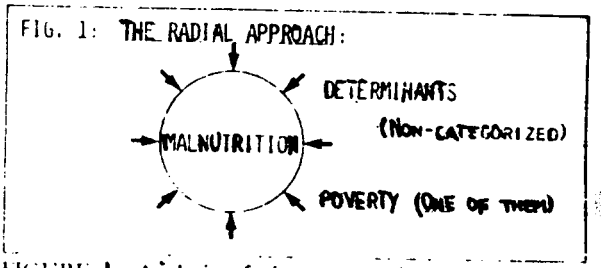


FIGURE 1 Analysis of the causes of malnutrition, the Radial Approach.

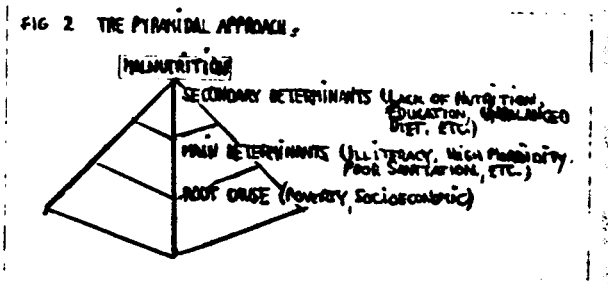


FIGURE 2 Analysis of the causes of malnutrition, the Pyramidal Approach.

minor favorable results may occur; in the figure of the Radial Approach this is indicated as being a piece meal attack on the determinants of malnutrition, where poverty is only *one* of the many variables for attack.

The alternative approach to the malnutrition problem is that poverty represents the underlying cause of malnutrition. As a consequence, poverty with all its determinants has to be attacked in an articulated way (shown in Figure 2 as the Pyramidal Approach) by categorizing and linking said determinants according to their different levels of causality.

THE INDICATOR

In order to raise the consciousness of authorities and decision-makers towards the perennial socioeconomic (SE) roots of malnutrition, it is important to express the nutritional deficiencies of the poor in the form of "Household Purchasing-Power Deficits." To make such estimates, nutritionists must associate themselves with economists to translate nutrient deficits into cash values.

Several steps must be followed in order to make this translation: (See Figure 3 for a systems analysis of the process proposed).

First, one must obtain the following classical sets of data for a specific population:

SE status: household budget-survey that records level of living indicators. (Chossudowsky, 1975; FAO, 1972).
Food consumption patterns.
Nutritional status

Second, having obtained these data sets, one must:

Group households according to their total income (including cash and non-cash items) and family size.
Acknowledge the most prevalent malnutrition patterns for each group with special emphasis on pre-school children and pregnant and lactating mothers, to differentiate overall food shortages from specific nutrient deficits.
Analyze the staples and most commonly consumed foods in each group.
Calculate the nutritional deficit (particularly calories and proteins) for households of different sizes in each SE group, using the Recommended Daily Allowances (FAO or NRC) as a reference. (FAO, 1972).

The third step is the point which extends the analysis beyond the usual studies made by nutritionists: Once the dietary habits of each SE group have been determined from the consumption survey, one can use prevailing food price information to express the nutrition deficit for each household group, in terms of the "additional income requirements" necessary to allow that family to reach the Recommended Daily Allowances (RDA) for at least calories and proteins. Having this additional income would allow each of their members to meet their needs by simply purchasing and consuming more of what they regularly eat. (At this point it is important to keep in mind what has been called the Household Scale Effect: One person eats X amount, 2 persons eat less than 2X; this is true in households up to 4 members, but not beyond). (Alarcon, 1975).

Alternative approaches to answer the same question could be:

The calculation of a minimum "consumer basket" for each income bracket, or the definition of a threshold poverty income or a minimum subsistence income (level of family income which is necessary to meet minimum food requirements). (Chossudowsky, 1975).

Calculating how much nutrition (nutrients) the government-fixed minimum income can buy in a given area.

Asking the low-income housewives: "How much of your everyday staple are you short each day, to feed your family to satiety now and in other seasons?"

USES AND POTENTIAL ABUSES OF THE PROPOSED INDICATOR

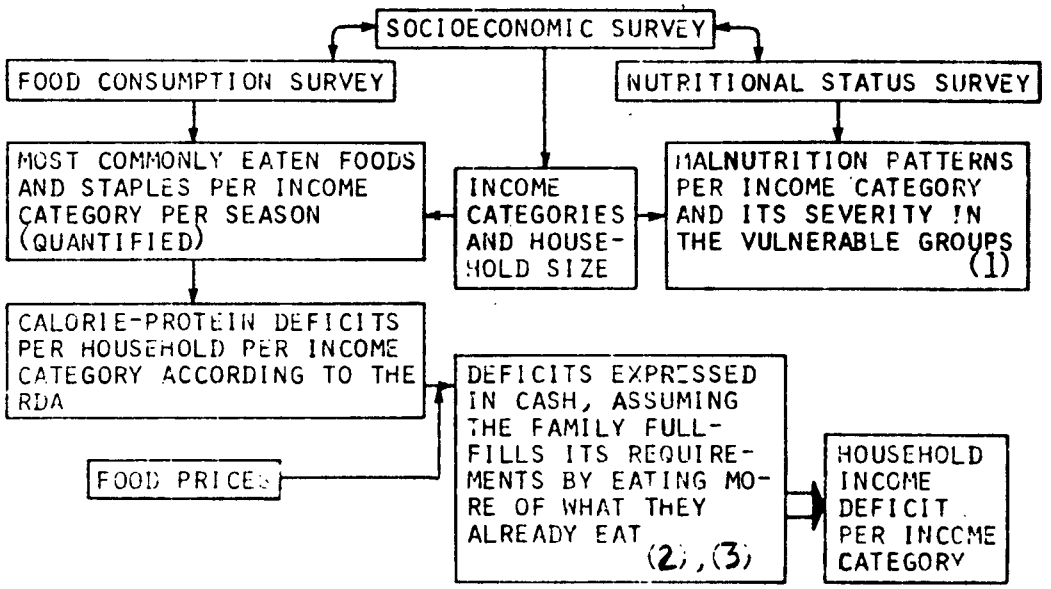
The impact of nutrition or health-related interventions can perfectly be estimated and expressed in cash, in a way that one can unambiguously say that a certain amount of money is saved by the households participating in such a program. (Milius, 1977). This amount of cash can be prorated per participating household and can then be subtracted, totally or in part, from the income deficit figure calculated through the method just proposed in Figure 3. (Totally means we would assume all the "saved" money would have been spent on food.)

The latter procedure clearly shows that, although the applied intervention may have been

technically a success, it only partially mitigated the deeply rooted cause of malnutrition in each family reached by the program; a significant income deficit remains as a balance after subtracting the "saved" money from the income deficit figure.

It is not proposed that if the above balance becomes zero, problems will be solved automatically; all that is said is that this will be the time when more isolated technical interventions will have much more chance for success. An educa-

FIG. 3: PROPOSED STEPS TO DETERMINE HOUSEHOLD INCOME DEFICITS:



(1) These results have no direct input in the calculation of the final income deficit figure, but they are indispensible for two reasons: a) To get an idea of the severity and types of malnutrition most prevalent in the community, and b) To plan the needed nutritional interventions, once an overall strategy is implemented to significantly reduce the income gap.

(2) If elasticity of demand data are available, the final income deficit figure should be adjusted accordingly; without such information, the estimated income deficit will most probably be under-estimated by the extent to which individuals and households allocate increases in income to items other than food.
Income deficits will fluctuate with food price changes and wage changes, and therefore, should also be adjusted each time said changes are significant.

(3) If a cross-sectional study is done, including all SE strata, some calorie-protein excesses, expressed in cash, can be calculated in the same way as described above, to find out how much of a "poor man's diet" could be bought from what the upper classes overeat.

FIGURE 3 Proposed steps to determine household income deficits.

tional effort, for example, should have more impact at this point, rather than when scarcity of food is the main problem.

Note, at this point, that the intra-family food distribution patterns can still distort the positive effects of an income-redistributive intervention by providing additional foods to those who need it the least. Concomitant school and pre-school feeding programs may attack this specific problem better than trying to take away the lion's share from the head of the household. Nevertheless, if significantly more food is available to the household as a whole, the mother and children will get more after the lion is satisfied.

When using the proposed analysis, we are aware that one will be working with approximations, but most of the possible bias will still come from the food consumption survey and *not* from the later stages of the method.

Hopefully, this method will objectify and quantitate better, as well as, dramatize to authorities that the so often token approach, with pat solutions, to the malnutrition problem gives unrealistic hopes for the outcome of said interventions. What we are actually doing is to look for a comprehensive solution on the demand side, rather than on the supply side of the malnutrition problem. (Joy, 1973).

The technical measures themselves are not a tool for income redistribution: they may have a partial redistribution impact as a side-effect, assuming that they have reached the low income target group as defined by a poverty line.

In summary of what has been said so far about the uses of the indicator, this method of presenting nutritional data forces us to keep in mind that present interventions in the nutrition area leave a pending balance for which only more directly oriented SE redistribution measures will be a long-range solution. For instance, the use of this approach would show, we think, how the availability of a steady source of income would affect the nutritional status of the household members much more than an isolated food distribution program. We say steady source of income and *not* necessarily employment, because in many underdeveloped countries a first stage should be to make the subsistence farmer sector selfsufficient before introducing them into the monetarized economy. Therefore, we will speak of *income generation* as a goal, and not employment. In a first stage, income can mean food selfsufficiency, rather than money. (Alarcon, 1975).

Poverty, as has been stated above, is a syndrome. Its best indicator, economists tell us, is "*consumer expenditure*." (Not income, because the family members might spend their income or save part of it. Nevertheless, expenditure has to be compared with income. If the former is bigger than the latter, there is a "dis-saving," implying that the person (or household) cannot satisfy his given needs with his given income level. This fact, for some, defines poverty in simple terms, independently of the level of income. In other words, those who earn little, spend little and are therefore poor; those who spend more than what they earn are also operationally poor, since their needs exceed their income and poor families seldom have extravagant needs). (FAO, 1972; Alarcon, 1975).

There should be no doubt about the objectivity of *consumer-expenditure* as an indicator of poverty and therefore, an indicator of malnutrition, since all the other masks that poverty wears (cultural and educational deprivation, poor health status and low sanitation, among others) correlate highly with expenditure. Each mask has its own indicators; we should not be tempted, through lack of perspective, to try to improve the indicators of the masks only, without doing anything about the real face of poverty which is SE deprivation (or rather *privation*, since the poor have never had any wealth). Poverty should not be seen as an evil, but as a basic injustice to be corrected. It makes sense, then to express nutritional deficits in the units of its primary determinant, (the unit of money), if one desires genuinely to improve nutrition and reduce poverty.

There are several additional considerations, at this point, that have to be made considering potential uses: if a given government would pay attention to a deficit figure like the one proposed and would genuinely want to do something about it, what would some attractive options be?

Income Generation

In the monetary-sector of a developing economy this means more employment. If more jobs are created which are unrelated to food production, families would have more available cash and the demand for food would rise (in a system where production of food is limited). Food prices in the market would initially rise until the new incentives would stimulate a higher agricultural output. This rise in food prices would, in the short run, defeat our purpose, since the income-deficit figure would

also increase. (Exception would have to be made for the previously unemployed who got a job under this new policy; they would be better off in any case)

The alternative that comes to our minds after the above analysis is a government policy at first deliberately geared towards promoting self-sufficiency in the subsistence sector and increasing employment opportunities in the areas of food production and food processing (mainly in agriculture itself, in support industries and in all the services related to the food chain). This choice is more for a labor-intensive *via à vis* a capital-intensive approach in the production and processing of food, using intermediate technology; it also calls for a strategy oriented more to comprehensive-rural-development *vis à vis* a strategy oriented only to increase agricultural productivity and output. As a secondary result of such a rural-oriented policy, migration to the cities should tend to decrease.

What a move in this direction obviously implies is a situation in which a bigger proportion of the population will have additional consumption possibilities, coupled to the fact that the food supply will increase, tending, therefore, to stabilize food prices (possibly even lowering them). Increased effective demand generates a feedback effect which produces more income earning opportunities and also may generate additional government revenue to help defray part of the cost of the intervention. (McCarthy, 1976).

Income Redistribution

This could be achieved through one or several of the following deliberate mechanisms;

- Differential salary adjustments following inflation (proportionately higher raises for the lower income groups).
- Progressive taxation system on income and property.
- Land reform.
- Transfer of technology and credit discrimination towards small enterprises.
- Other (vocational and technical education, nationalization of natural resources and financial institutions, etc.).

Economic development by itself is not enough There is evidence that at the early stages of economic development, incomes are likely to become more unequally distributed. (Kuznets, 1963).

The effects of a drastic income redistribution policy on food demand can be considerable (assuming income elasticity lies between 0 and 1). It was estimated in a recent FAO publication as follows:

> Over a 10 year period a drastic redistribution policy would increase the overall demand for food by 13 percent over the expected demand without a redistribution. Over the same period a moderate redistribution policy would increase the demand by 9 percent (FAO, 1972).

Changes in the distribution of income could also play an important part in stimulating consumption of agricultural products and consequently in increasing the farm income.

In general, redistribution would produce a large shift in the economic structure of the country by shifting (hopefully) domestic demand towards food (even if there is no increase in average *per caput* income). (Iyengar, 1970).

Food Consumption Subsidies – Rationing System

Although not particularly attractive and although they have many detractors and their political viability is often dubious, food subsidization and rationing schemes (individually or in conjunction) should be kept in mind. They might become important options at some time. A few countries, like Pakistan for example, have had them for a long time, and they have been mechanisms of redistribution and dietary supplementation for the poor in the past. (Rogers, 1976).

Food consumption subsidies are implemented through government price policies. Traditionally, governments have intervened in agricultural prices trying to affect farm production and farmers income (positive farm price policies). High prices that stimulate agricultural production tend to have a negative impact on food consumption. A system of government subsidies on the consumer prices of foods is supposed to reduce this conflict. (Rogers, 1976). However, often the latter government subsidies are the only government intervention implemented (without a positive farm price policy) in order to keep the impoverished urban population from protesting. This is a political decision. The result is often black market, if the commodities subsidized are in high demand in the market.

Some kind of an interplay between positive and negative price policies can be applied by decision-makers as a transition mechanism to improve the nutritional status of the poor. (Interestingly enough, income supplementation may be a far more cost-effective way to increase nutrient intake than food price subsidies.) (McCarthy, 1976).

Food rationing is an extreme intervention, especially considered in times of disaster and acute shortages. (Dwyer and Maver, 1975). It has, though, been used in some socialist countries for more prolonged periods of food shortage, at least with the important partial success of reducing malnutrition and mortality rates in children. Under rationing conditions food supplies are distributed to cover the requirements for nutrients ascribed for age, sex, reproductive status and intensity of physical labor. Among all nutrition interventions, food rationing has perhaps the most powerful income redistribution impact. Nevertheless, great logistical problems are involved and should not be forgotten.

At this point, it should be remembered that many underdeveloped countries have Food Balance Sheets showing adequate amounts of calories and proteins available for the country as a whole, but still having high rates of malnutrition and infant mortality.

Finally, what about potential abuses in the use of economic indicators of malnutrition in general?

Recognizing the income deficit which underlies the problem of malnutrition has also been used to maintain status quo:

The first question to be raised in this context is whether the Food Stamp Program (FSP) in the United States is based on a similar approach as that proposed in this paper. Since the FSP partially subsidizes the sectors of the population with incomes below the Poverty Line (its determination being heavily dependent on food prices), one could think that the FSP is an intervention that takes into consideration the premises proposed in this paper and tries to remedy them through generating income (although not earned income) for households with purchasing power deficits. Nevertheless, the whole welfare concept linked to the Program defeats the purpose in terms of our approach. If the Poverty Line per household size would be used as a semiannual indicator to be defeated, in terms of less number of households falling in that category, it would be something similar to what has been discussed. However, the built-in indicators of success and achievement in the FSP are directed more towards outputs that measure the efficiency of its bureaucratic components, rather than being really directed to solve some of the deep social problems of the United States. A decreasing number of FS users per year (because of decreasing number of eligible households) would be the real goal to fight for.

A second misuse of *income-deficit* as an indicator is that it may tend to focus the government's energies on bridging the income gap of the urban poor to the detriment of the rural poor (especially when most of the population is rural). Often this is the result of a conscious political decision designed to face the more visible urban problems. This urban-oriented policy is very frequently linked to food distribution programs for the urban poor using international food aid (mostly US PL 480 and World Food Program commodities). Urban-oriented policies and continued international food aid dependency occurring together pose an extremely serious problem, in the long run, since they create continued dependency on food imports (both donated and paid for in cash, in hard or 'local' currency), decreased farm output, and therefore, perpetuation of the economic problems of the country as a whole. The dynamics of this falacious approach was already analyzed above.

The delayed adjustment of economic indicators (consumer price index, for example) in inflationary situations is a third mechanism (often deliberately applied), to maintain status quo, since average income deficit figures stay consequently low. This is a potential situation in which the procedure would be correct, but a non-timely update of the economic indicators would work against the interests of the salaried workers.

CONCLUSIONS

In this paper the following thread of thought is followed:

The main cause of malnutrition is poverty.

Therefore, malnutrition has to be attacked in depth; the main interventions have to explicitly consider and address the low income variable of the problem.

To create awareness of this phenomenon it would be desirable to express malnutrition in economic terms, rather than in nutritional terms (nutrient deficits). The economic indicator

proposed here is a measure of the deficits in purchasing power of the households.

Once awareness is raised on this issue, it should be clear that the traditional types of interventions nutritionists have been involved in, offer only limited possibilities of total success in the world-wide battle against malnutrition.

The types of measures that governments should give priority to, are: first, income generation opportunities for the rural poor and new employment opportunites in the areas of food production overall, and in services related to the food chain. Secondly, income redistribution policies, and finally, optional food subsidization and/or rationing measures.

Thinking about malnutrition in economic terms does not automatically assure commitment to something being done about these general problems. As a matter of fact, sometimes accurate economic diagnostic procedures are not followed by economically oriented policies and, not unfrequently, the calculated indicators are used to maintain staus quo.

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