AMERICAN UNIVERSITY OF BEIRUT
Department of Economics

ESTIMATING POVERTY LINES FOR WEST BEIRUT

by

Goran Milenković

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characteristics of the production processes. No "unequal exchange" can occur in such an elegant framework. Since the wage rate is endogenously determined (and not always at subsistence levels) no real indication about the poverty line exsists. Utility analysis must be brought into the framework and poverty is transformed into a subjective concept.

Which of the two "schools of thought" one chooses to follow depends largely on which theory of distribution one pledges his loyality to. However, how the 1.3 billion human beings who are estimated by varoious international organizations to live in or at absolute poverty levels (Weigel, 1986) will react to the propostion that the severity of their poverty depends on their subjective utility functions is a question that will never be answered.

2. Absolutism Versus Relativism

The problems of how to define and measure poverty cannot proceed until we clarify the conception of poverty we wish to employ. Two broad concepts can at present be identified. On one extreme we have the absolutist notions which consider poverty to be a situation of deprivation of certain basic goods and services necessary for maintaining physical subsistence, independent of the general standard of living in society. This approach does not explicitly link the level of the poverty line to the average welfare in society. Implicitly, however, the

objectivity of this method is questionable as the choice of basic needs is culture-bound (van Praag et al., 1982b), depending not only on individual minimum requirements but also on social norms and traditions. And as these evolve through history so does the poverty threshold.

At the other extreme poverty is seen as a situation of relative deprivation. As Atkinson (cited by Hagenaars and van Praag, 1985) puts it: "it is misleading to suggest that poverty may be seen in terms of an absolute standard which may be applied to all countries at all times, independent of the social structure and level of development. A poverty line is necessarily defined in relation to social conventions and contemporary living standards of a particular society" (p.140). In this respect people are considered poverty-stricken when their income, even if adequate for survival, falls markedly behind that of the community (Galbraith, 1970).

Notions of relativism, even though primarily introduced by Townsend (1954, 1962), are not that new nor revolutionary. Smith, Ricardo, and later Marx all used this concept in their analysis of the subsistence wage which they claimed to be dependent on "perceived" standards of living ("socio-historic minimums") and these change through time and space. Obviously, the higher the developmental stage of a society - the higher the subsistence wage needed to fulfill "basic" needs and desires.

An emphasis on the relative perception was laid in the early 1960's when poverty seemed to have been "rediscovered" in

the developed countries. As such it served the purpose of awakening social consciousness and public policy, and it served its purpose well. But instead of the attack taking the form of disputing the claim that the old absolute standards were still relevant, it took the investigation entirely into the relativist direction. Yet a completely relativist concept is just as unsatisfactory.

Sen (1983) explains this point well: "*absoluteness* of needs is not the same as their *fixity over time*. The relativist approach sees deprivation in terms of a person or a household being able to achieve *less than what others* in that society do, and this relativeness is not to be confused with *variation over time*" (p.155). Even under an absolutist approach the poverty line will be a function of some variables, and there is no a *priori* reason why these variables might not change over time. Sen concludes that *absolute* deprivation in terms of a person's *capabilities* relates to *relative* deprivation in terms of commodities, incomes and resources.

The temptation to think of poverty as being altogether relative arises from the fact that the absolute satisfaction of some of the needs might depend on a person's relative position vis-a-vis others. As will be seen later, a completly relativist view means that poverty can never be eliminated and that any anti-poverty program can never bear fruit. Relativists look at the nature and size of the differences between the bottom "x" percent (10,20,40) and the rest of society. Because they define poverty levels in this way they assume that a

proportion of society will always be in poverty, for no matter which policies we implement – the lowest "x" percent will always exsist. Such notions can completely miss the point if, for example, a country is hit by economic hardship (eg., starvation). We have been made to abandon an essential characteristic of poverty, replacing it with some imperfect notion of inequality as such.

"Ultimately poverty must be seen to be primarily an absolute notion, even though the specification has to be done quite differently from the way it used to be done in the older tradition" (Sen, 1983, p.153). A completely relativist position makes sense only if the world is viewed as a whole and a comparison between countries is made.

While one could easily reject a fully relativist view of poverty, making it just an issue of inequality, it is possible to adopt a relativised (not relativist) view without running into these problems. We can estimate the poverty line for a given community at a certain period in time by absolutist means and relativising it by bearing in mind the level of historical development achieved by that society at that particular time. This can be achieved by estimating those absolute needs which are objectively quantifiable (e.g., food) and then transforming them into poverty lines through a proxy which reflects prevailing living standards. The resulting poverty thresholds will express both the absoluteness of human needs and the relativeness to levels of development.

A poverty line that is neither completely absolute nor

totally relative seems also to be supported by empirical findings. Kilpatrick (1973) came up with strong evidence that the poverty line, as perceived by "average judgement of society", does rise with average income. In this case average income can be assumed to be a proxy for the level of historical development. His analysis of the Gallup Poll and average income for the years 1937-1971 revealed the income elasticity of the poverty line in the U.S.A. to be 0.6. The income elasticity would have been zero if the poverty line was perceived as purely absolute (i.e., independent of income growth) and one if purely relative (i.e., proportionate to income growth).

B. A SYNTHESIS OF POVERTY LINE DEFINITIONS

The poverty line is usually understood to be an income or expenditure level that is considered to be a borderline between the poor and the non-poor. Many different poverty line definitions have been proposed. They vary from a fixed level of purchasing power to decile-definitions of poverty.

Recently it has been mathematically shown that a poverty line as a unique functional solution cannot exist. Depending on how many variables we include in our analysis it is more realistic to assume the exsistence of a "poverty boundary" in space (Hagenaars and van Praag, 1985). But for simplicity's sake usually only income is used to express an individual's welfare, and in such cases there is a unique solution representing the poverty line.

In this thesis an "economic" definition of the poverty line will be used (eg., Hamilton, 1968). It is described as that situation where income, representing command over resources, falls below a certain critical level.

Two general approaches to the determination of this critical level can identified. Expenditure oriented poverty line definitions look at the consumption side of consumer behaviour and try to quantify minimum needs. Depending on how all-embracing their ambitions are these definitions can attempt to cover all necessities (Basic Needs Methods) or only a certain portion of requirements ("Food-Only" Methods). Their

POVERTY LINE DEFINITIONS

```
                                                       ┌─ Rowntree
                                    ┌─ Basic Needs ─────┤
                                    │                   └─ Orshansky
                 Expenditure ───────┤
                 Oriented           │                   ┌─ Food Ratio
                                    │                   │
                                    └─ 'Food Only' ─────┼─ Food Poverty
                                                        │
                                                        └─ Ultrapoverty
  Absolute
     vs ──────────┤
  Relative
                                                        ┌─ Fraction of Average Income
                                                        │
                                                        │  Percentile of Income
                 Income ─────────────────────────────── ┤  Distribution
                 Oriented                               │
                                                        └─ Leyden Poverty Line
```
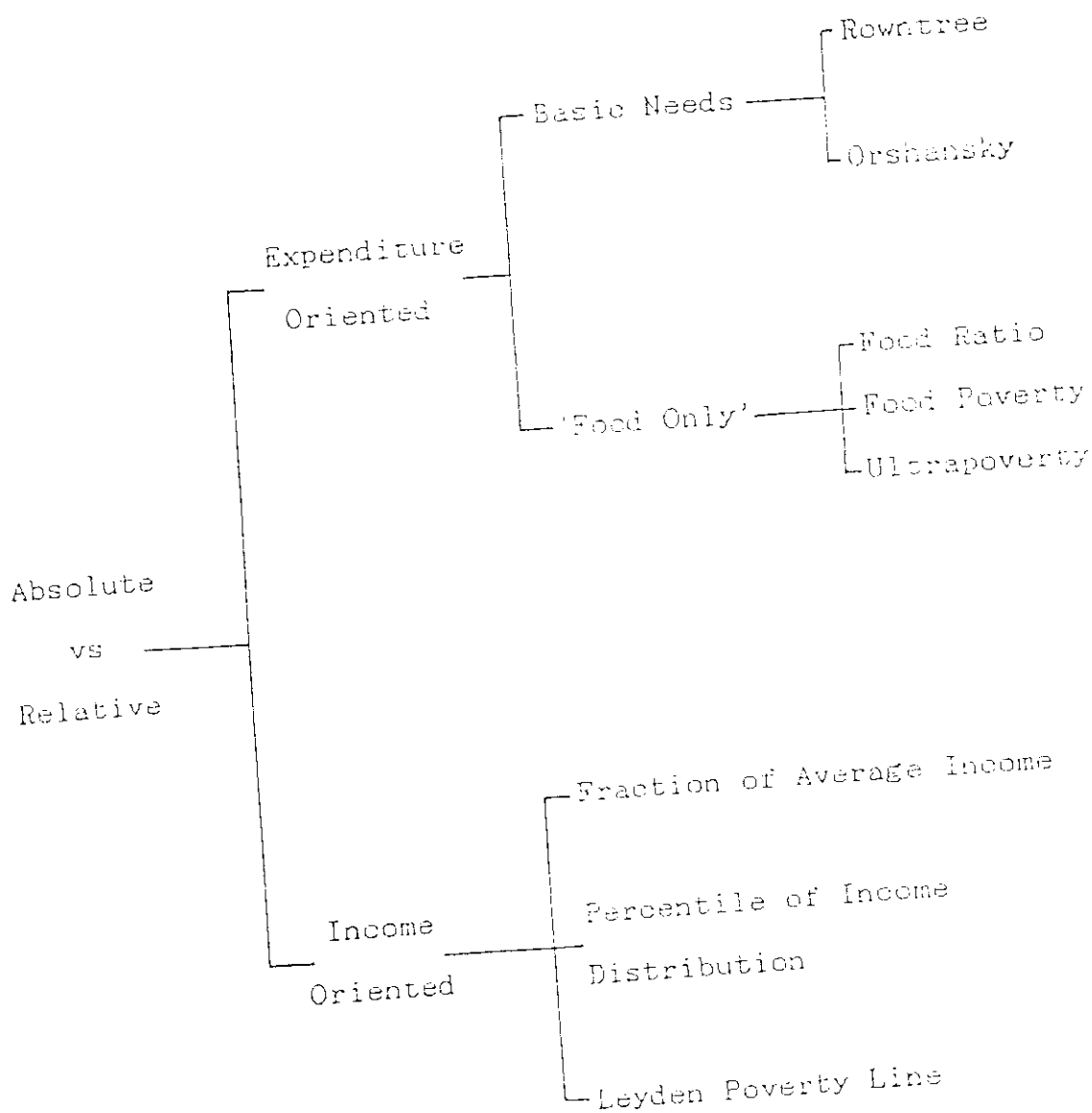
-8a-

methodologies are rooted in the absolutist tradition, but, as will be seen later, some have overcome the rigidity of pure absolutism. Income oriented poverty line definitions, on the other hand, disregard consumtion behaviour and focus their attention on the adequacy of the purchasing power of individuals in relation to society as a whole. They can emphasise overall income (Fraction of Average Income Method), equality of distribution (Percentile of Income Distribution), or subjective perceptions of acceptable minimum income (Leyden Studies).

1. Expenditure Oriented Definitions

(a) Basic Needs Approach

Given the level of socio-economic and cultural development of a society, three different standards of living can be identified: the lowest standard of living for physical and mental survival, the subsistence standard of decent living which allows for the satisfaction of all necessities of life, and the highest standard with the consumption of all luxuries available (Sharif, 1986). The first two standards warrant further examination, for they are the foundations of the basic needs approaches to the poverty line definition. The former is behind Rowntree's reasoning while the later is closer to

Molly Orshansky's method.

Furthermore, the basic needs concept has two aspects which must be kept in mind. The first refers to certain minimum requirements (or basic needs) which need satisfaction - such as adequate food, shelter, clothing, certain household equipment and furniture, essential services provided by and for the community at large, such as safe drinking water, sanitation, public transport, and health and educational fascilities (ILO, 1977). The second deals with levels of satisfaction of these needs. Here we distinguish between survival levels of satisfaction and the productive efficiency levels of satisfaction (Sharif, 1986). While the survival needs are mainly physiologically determined, the needs for efficiency are functions of both physiology and social custom and tradition. Their distinction is not always clear. The satisfaction of mental needs provides the sense of human dignity and the sense of belongig to society. Failure to meet these needs sets an individual or a family apart from others in that society (Franklin, 1967).

It is, therefore, true to say that the standard of survival thus interpreted is the lowest level of possible social living. It is a level lower than that of subsistence. While the standard of subsistence is free of any physical empoverishment, the standard of survival is not. It involves impoverishment of body and mind caused by economic and social deprivation (Sharif, 1986).

(i) Basic Needs Approach According to Rowntree

Pioneer work on the measurement of poverty was carried out in Britain by Charles Booth and Seebohm Rowntree at the end of the last century. In his classical first study of poverty in the city of York in 1899, Rowntree estimated the cost of buying commodities he considered necessary to maintain physical efficiency in households of varying size and composition. He composed a food basket which would ensure "health and working capacity". This diet was an absolute minimum an average person needed for survival. To this expenditure on food fixed amounts for other distinctly described items such as clothing, fuel, and household sundries were added. Rowntree's 1899 minimum income or "primary poverty line" was, therefore, a mere survival income, allowing for the satisfaction of only the barest physical needs.

Rowntree's poverty line (z_i) can be described as

$$z_i = C_f^{\cdot} + C_0^{\cdot} \qquad (1)$$

where $C_f^{\cdot}$ - minimum cost of nutritionally an adequate food basket;

$C_0^{\cdot}$ - minimum cost of non-food needs.

This poverty line is obviously as absolute as one can make it. It is arbitrary and completley neglects the influence of a society's standard of living on its poverty level. Nevertheless, many authors have adopted this approach in their

analyses. Almost all countries based their first measures of poverty on methodologies in way or another linked to Rowntree.

For example, in Batson's 1945 surveys of poverty in South Africa and Southern Rhodesia (now Zimbabwe) the "Poverty Datum Line" (PDL) was defined as an estimate of the income needed by any individual household if it is to attain a "defined minimum level of health and decency". The devised standard was calculated on the assumption that purchases are made in the cheapest market open to ordinary customers, and disregarded any expenditure which did not compose "the barest minimum upon which subsistence and health can _theoretically_ be achieved" (Franklin, 1967, p.276; our underlining). They included expenditures for food, clothing, fuel and lighting, cleaning materials, transport, and housing. It omits any allowances for medicines, education, etc. Batson himself concluded that his PDL is not a "human" standard of living. If anything at all, the PDL can only point to the income needed to support life in the short run.

Rowntree's methodology is also used in many countries for minimum wage determination. Three exampes are presented in Table 1. We see that it is very important how the expenditures are distributed on different consumption groups and how explicit we are in describing each of them. Some countries use elaborate budget surveys to establish these norms, but in most cases in the developing coutries the numbers are chosen arbitrarily.

(ii) Basic Needs According to Orshansky

Orshansky (1965, 1969) adopted a different way of quantifying the total basic needs of families. She used low cost food plans developed by the U.S. Agriculture Department and transformed them into a subsistence budget by multiplying the costs of these food plans by the inverse of the overall average U.S. food-income ratio. Instead of calculating the expenditures for non-food necessities one by one, as did Rowntree, she rounded off this figure by using an average Engel coefficient estimated from household survey data. The logic behind this move was that since the average American family spent approximately one third of its income on food, a poverty line could be drawn at three times the sum required to purchase the low cost diet. The assumption was that the poor would have the same flexibility in allocating income as the rest of the population.

This poverty line can be expressed as:

$$Z_2 = \left(\frac{C_f}{Y}\right)^{-1} C_f^* \tag{2}$$

where Z_2 - poverty line;

C_f - average expenditure on food for the population;

Y - average income in the population.

Two tresholds were established. From the Low Cost Food Plan the Near-Poverty Line was estimated, while the Economy Food Plan (which is cheaper than the first, i.e., a lower C_f^*)

characterized the Poverty Line. These expenditures were further differentiated by family size and composition. Even though these poverty lines were established over twenty years ago, they are still used by the U.S. Social Security Agency. Annual updates are based on changes in the Consumer Price Index for All Urban Consumers (Fisher, 1984) as shown in Table 2.

A recent study (Thomas, 1987) defined poverty non-food requirements as the product of the cost of a food basket times the inverse of the food to non-food expenditure ratio for the country as a whole. We see that the average food/income coefficient as used by Orshansky has been replaced by an average food/non-food ratio:

$$z_g = (\frac{C_f}{C_g})^{-1} C_f^* + C_f^*$$

(3)

Even though both approaches will basically yield similar results, a comparison to equation (1) shows that Thomas's methodology is is actually closer to Rowntree than to the Orshansky method as it can be assumed that at the poverty level

(4)

$$(\frac{C_f}{C_g})^{-1} C_f^* = C_g^*$$

Table 1
MINIMUM WORKER'S FAMILY MONTHLY EXPENDITURES
USED FOR MINIMUM WAGE DETERMINATION

Item	Rio de Janeiro (1955) in cruzeiros	percent	Santiago de Chile (1957) in escudos	percent	Panama City (1962) in balboas	percent
Food	1,925	55.0	24.51	51.3	44.70	32.2
Housing	945	27.0	12.22	25.5	30.26	21.8
Clothing	385	11.0	6.62	13.9	13.34	9.6
Other	245	7.0	4.45	9.3	50.53	36.4
Total	3,500	100.0	47.80	100.0	138.93	100.0

Source: Franklin, 1967, Tables III, IV, V.

Table 2
COMPUTATIONS FOR THE 1984 ANNUAL REVISION
OF THE POVERTY THRESHOLDS FOR THE U.S.A.
(in USA$)

Size of family unit	1983 Poverty thresholds	1984 Poverty thesholds (price inflator=1.0322)
1	4,091	5,059
2	6,281	6,483
3	7,693	7,941
4	9,862	10,180
5	11,684	12,060
6	13,207	13,632
7	15,036	15,520
8	16,719	17,257

Source: Fisher, 1984, Table 2.

(iii) Commentary

The many arbitrary elements in attempts to determine minimum physical needs, the absence of a clear-cut distinction between these and social needs, and the fact that minimum social needs can be defined, if at all, only in relation to social norms of particular communities - all these things raise the question whether attempts to determine minimum living standards based upon what investigators consider to be necessary without regard to how people actually spend their incomes are worth the effort they involve. The work of Rowntree and others, who have adopted similar methods, has had a great and valuable educative influence on public opinion and public policy (Franklin, 1967), but it has revealed progressively more clearly the difficulties of defining poverty in absolute terms.

The major ones that often surface when attempts are made at classifying human needs are, as Weigel (1986) noted:

first, the tendency to confuse needs with preferences, thereby creating an overly expansive range of human needs;

second, the fact that the hierarchical distinction between material and non-material needs is often overdrawn; the effect being that the importance of non-material goods is underrated at low levels of need satisfaction and overrated at higher levels of development;

third, that nearly all need hierarchies suffer from too much generality; and,

fourth, that many hierarchies understand "needs" as

deficiency needs (i.e., the deprivation of particular goods).

The Orshansky method is superior in this respect. Rather than attempting to estimate non-food expenditures one by one it generalizes these requirements and computes them through an objectively determined coefficient. And, as will be seen later, the food/income ratio is a very good proxy for economic development and general living standards. The absolutsist foundation (the least-cost diet) is thus relativised through an observable index. This makes the Orshansky poverty line neither totally absolute nor merely relative.

The "shaky" part in the structure seems to be the exogenously composed least-cost diet. In the case of the USA it was so rigorous in its assumption about minimum expense that the U.S. Department of Agriculture estimated that only 10 percent of consumers actually spending the proposed amount were able to aquire a nutritionally adequate diet (Orshansky, 1969). The main reasons for the disparity between observed behaviour and expert judgement about food consumption are threefold. First, the low-income housewife is likely to be a less informed customer; second, she is likely to purchase goods of inferior quality; and finally, beacuse of very limited funds she pays on average more for the same goods as she is not able to exploit the advantages of bulk purchase (Rein, 1970). Otherwise, the least-cost adequate diet is of sound logic. It postulates what people should be getting (in a nutritional sense) and which they would, were their incomes above the poverty subsistence level. The only difficulty is that any least-cost diet is only

one of an infinite number of combinations. The combination of foods chosen will to a geart extent depend on the subjective choice of the person composing the diet. On top of this expert judgement may not fully reflect tastes, customs, tradition, etc. and price variations facing the consumer.

The second question that could be raised is whether the overall average Engel coefficient should be employed or whether it is more correct to use only the percentage spent on food of lower income groups when transforming food costs into total expenditure levels.

Estimating poverty lines though the food/income ratio of lower paid classes of society will yield lower results as the proportion of income they allocate for food is generally higher than that of the "better-off" groups. As such it could be claimed to be closer to reality since it is these sections of society who already are living at around poverty levels.

This is a misconception brought about by the prejudice of logical thought. It is natural that when two numbers are presented which seem equaly valid, and we are searching for a minimum (what a poverty line indirectly is), the lower number will be chosen. But who can a priori postulate that any part of society is the relevant group for poverty line determination before the classifying standard has even been established. Maybe the incomes of the lower paid sections already are far below the poverty line. In that case the resulting poverty threshold would suffer from an unreasoned distortion as it

would not be _relativised_ in relation to the social, economic, and cultural development of the community as a whole but simply remain an absolutist measure calculated in a slightly different manner.

(b) "Food-Only" Methods

This family of related poverty line definitions believes all attempts at estimating total requirements to be futile. Rather than calculating both food and non-food needs authors of this persuation focus only on food consumption. This is because food is the first and foremost human necessity and easiest to measure "objectively". It has also long been accepted that the proportion of income allocated to food is an indicator of economic well-being. Rao (1981) claims that the decreasing relative importance of food expenditure and increasing per capita income holds so well that countries can be classified for real income by this criterion alone. In fact, food has such a high priority for an extremely poor individual that he is most likely to spend his entire incremental income on food alone (Lipton, 1986).

(i) Food Ratio Method

In its traditional form this method sets a maximum value for the ratio of food expenditure to total income or total

expenditure $E_f = C_f'/Y$. If someone's actual E_f ratio is higher than this critical value that person is classified as poor; if the actual E_f ratio is lower than the the critical value the person is considered non-poor.

Love and Oja (1977) applied a modified version of this approach to Canadian data. In a 1969 national survey it was found that an average family spent 42 percent on food, clothing, and shelter. They postulated that every family which spent more than 62 percent (national average plus 20 percent mark-up) on these items can be considered as poor. From this ratio poverty lines were calculated, i.e., income points which imply that at least 62 percent must be spent on these three categories.

It is obvious that two considerations are of importance. First, how do we define the category "food" (do we include other essential requirements?); and, second, how do we choose the critical E_f ratio?

Rao (1981) proposes an interesting answer for the latter dilemma. He starts by stating two hypotheses on consumer behaviour:

1. Some extreme non-food expenditure is inevitable for even the extremely poor people;

2. Food ceases to be a relatively important item of expenditure as soon as the basic needs are met.

Rao defines deprivation as that state of exsistence in which the individual's food needs are not yet satisfied. The E_f ratio (which he calls the Proportion Spent on Food – PSF)

is expected to go up or to fluctuate until a critical income (or total expenditure) level and then contiunously to go down, as the level of income or the level of total expenditure increases beyond a certain level. The level of income or expenditure beyond which the decline of the PSF is clear cut and unambigous Rao lables the "Deprivation Point" since until that level people appear to be deprived of minimum food. Empirically the incidence of deprivation may be identified as the proportion of people covered up to and including the level of PSF from where the fall of the PSF is clear cut and smooth. For India Rao found this critical food/income ratio to be 83.2 percent (point DP in the following figure which was drawn using Rao's original data; for purpose of clarity a semi-log scale is used).

Figure 1

THE DEPRIVATION POINT
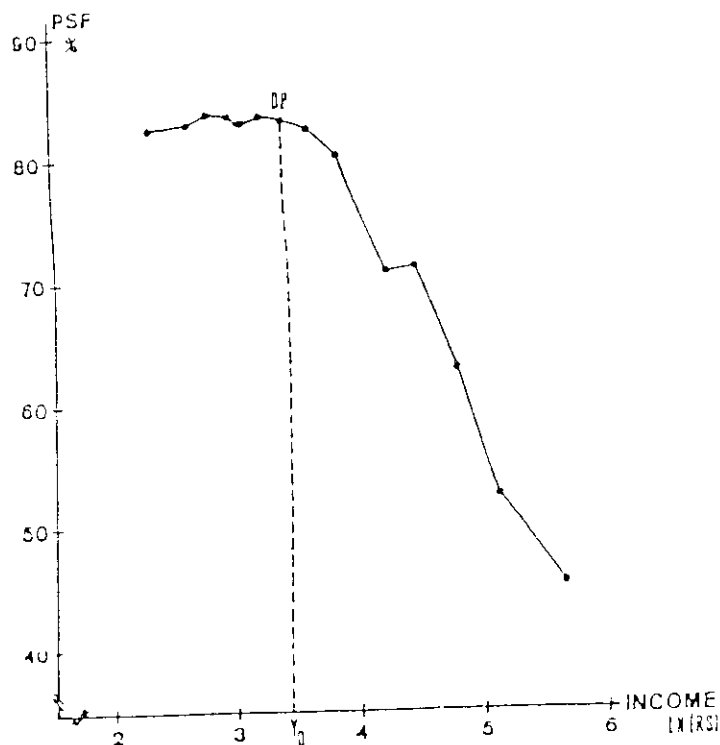
How one proceeds to estimate the poverty line is, as Rao admits, left to individual discretion. The only certainty is that the poverty income (Yp) has to be higher than the income which corresponds to the Deprivation point (income Yd on the graph), since at this level people are barely satisfying their minimal nutritional needs. Rao's suggestion is rather simplistic and completely arbitrary: $Yp = Yd + 1/2 Yd$.

(ii) Food Poverty

Greer and Thorbecke (1986), defined their concept of Food Poverty "as a condition of lacking the resources to acquire a nutritionally adequate diet" (p.116), measured in RDA (Required Dietary Allowance) calories. By taking the consumption habits of Kenyan households which consume the exact number of calories set down by the RDA standards (thereby escaping the arbitrariness of composed minimum-cost diets) and regionally differentiated prices they were able to estimate a cost-of-calorie function. Inserting the RDA of calories into this function gives the needed poverty line.

Musgrove (1985), on the other hand, simplified matters to a great extent. He constructed least-cost diets for 10 cities in 5 South American countries, calculated their cost and said that a consumption unit is poor if its actual observed expenditure on food is less than or equal to the cost of the norm. The main assumption being that if a family is actually spending less on food than what the experts have calculated (the proposed diets

are least-cost) that family must be suffering from undernourishment and poverty. Cases when a consumption unit is not getting enough calories because of perverse consumption habits are disregarded.

This can be seen from Table 3 where col.(0-64) and (65-99) represent the numbers in absolute poverty as they have observed food expenditures lower than the norm (i.e., the least cost adequate diets). Musgrove has also observed that classified in this way the share of individuals in poverty is always higher than that of households. This is due to the fact that lower income class groups have larger families.

Table 3
DISTRIBUTION OF POPULATION BY FOOD EXPENDITURE
RELATIVE TO NORM FOR SELECTED SOUTH AMERICAN CITIES

City	Food Expenditure as Percentage of Norm					Share in Absolute Poverty
	0-64	65-99	100-149	150-499	>500	0-100
Bogota	16.0	19.3	27.3	33.8	3.6	28.9
Barranquilla	10.2	12.4	30.1	44.4	3.0	22.6
Cali	14.4	22.9	22.1	37.2	3.3	37.3
Medellin	32.8	23.0	17.1	25.4	1.6	61.8
Santiago	13.0	10.9	26.6	37.3	2.1	33.9
Quito	40.2	25.5	18.5	15.7	0.1	65.7
Guayaquil	32.8	29.5	19.5	18.0	0.3	62.3
Lima	4.5	20.3	34.2	39.5	1.1	24.8
Caracas	9.7	16.5	25.0	47.1	1.4	15.5
Maracaibo	13.5	21.9	31.1	33.3	0.1	35.4

Source: Musgrove, 1985, Table 3.

(iii) Ultrapoverty

A combination of calories and income as a benchmark is also employed by the latest newcomer to this group of approaches. Inspired by the recent great African famines it directly undermines Greer and Thorbecke. Ultrapoor are consedered those households which in a typical week are able to eat so little food as to be in a significant risk of not meeting their dietary energy requirements. They follow the "two 80 percent rule": eating less than 80 percent of the 1973 FAO/WHO weight-adjusted energy requirements, despite spending at least 80 percent of income on food. Their incomes are so low that no matter which portion of their income (i.e., above 80%) they allocate for food they still cannot satisfy their minimal caloric needs. It seems that only the ultra-poor maintain their ratio of food to income outlay when they become a little better off (eg., see Lipton, 1986), as food has such a high priority on their preference scale.

*

*   *

The main deficiency of all "food-only" methods is that they relate poverty to only one explenatory variable. Non-food expenditures are hard to define, but that is no reason for abandoning them all together. In many countries, especially the more developed ones, non-food needs are very important if a family is to live like other members of that society and avoid being an object of pity or ridicule.

Rao's deprivation point (DP) is a marked improvement for this school of thought. Unfortunately his poverty line, based on the DP, goes no further than merely stating another subjective opinion. It is unfortunate that Rao did not fully realise the positive possibilities his approach offers. Concerning this point more will be said at the end of this Chapter.

Greer and Thorbecke also attempted to avoid using arbitrary minimum cost diets by analysing only consumer behaviour of households which consume a required number of calories. This is also unacceptable because of one very simple reason. It implicitly implies that all other nutritional needs are satisfied if enough calories are eaten. Various studies have proven this assumption invalid (Habib, 1977; Palti, 1983).

2. Income Oriented Definitions

(a) Fraction of Average Income Approach

Another well-known poverty line is defined as a certain percentage of an index of average income in society. At present the OECD employs this approach in its "Public Expenditures on Income Maintenance Programs" (according to Hagenaars and van Praag, 1985). As is obvious this poverty line is relative. Hence the poverty percentage depends on income inequality only; if income inequality decreases, the poverty percentage decreases as well. Economic growth, however, does not a priorily mean a reduction in income inequality.

Sometimes the average income is replaced by the median disposable income, as was done by Habib (1977) for the Israeli poverty line. Two thresholds were arbitrarily selected: a poverty line at 40 percent of the median disposable income, and a near-poverty line at 50 percent of the median disposable income.

The problem with taking only average income as the sole criterion is that it does not include estimates of income in kind (very important in less developed countries), the imputed value of services from durable goods and of public services (Habib, 1977). Current income also does not make allowance for the contribution of wealth to the family's command over resources. To ignore assets can be a serious fallacy. The

ownership of a house, durables, etc. can change the living standard of a poor person considerably. The degree of defect such an omission carries with it largely depends on the level of development a community finds itself in. But this criticism is mostly academic in nature as studies have shown that, except among the aged, there are few low income households with lots of assets (Orshansky, 1969).

(b) Percentile of Income Distribution Approach

This is the most relative of all approaches. It interprets poverty in relation to the prevailing living standards of the society recognizing explicitly the interdependence between the poverty line and the entire distribution of income. In its orthodox framework the poverty line is drawn at the income level which cuts off the lowest "x" percent of the national income distribution. This poverty line depends both on average income and on income inequality; for values of "x" smaller than 0.5, the poverty line increases if inequality decreases (Hagenaars and van Praag, 1985). It seems that a tacit agreement has now been reached to set the critical value at the lowest 40 percent, as was proposed by McNamara (1975) in another context and since there is now a tendency to compare the shares of the richest 20 percent with those of the poorest 40 percent (Ahluwalia, 1974; Midgley, 1984).

This approach, however, prejudges the issue to the extent and severity of poverty (Anad, 1977). It is "x" percent by

definition. Hence neither economic growth nor changes in the income distribution will reduce poverty. It directly implies that poverty can never be eliminated, as the lowest "x" percent exists in any distribution. This is not very realistic even if one assumes that governments should always be concerned the part of the population with the lowest living standards. Contrary to this, the fraction of income approach, although completely relative, does not presuppose this. For it is possible to imagine a society with everyone having more than, say, half the average income (Atkinson, 1970).

(c) The Leyden Poverty Line

The latest and theoretically most ambitious approach to the analysis of the poverty line comes from the Leyden University in the Netherlands. Goedhart et al. (1977) introduced their concept by claiming that people themselves are best qualified to judge what their minimal requirements are. Their approach tries to determine subsistence levels from the declaration or behaviour of individuals or families.

Basing the methodological framework on their previous works on individual welfare functions the authors came up with a cardinal utility function which they called the Individual Welfare Function of Income (WFI). For each individual the WFI is estimated from the following composite survey question, called the Income Evaluation Question (IEQ):

"Taking into account my (our) present living circumstances,

I would regard a net weekly / monthly / yearly (encircle the

period) family income as:

excellent   if it were above   _____

good   if it were between _____ and _____

amply sufficinet   if it were between _____ and _____

sufficient   if it were between _____ and _____

barely sufficient   if it were between _____ and _____

insufficient   if it were between _____ and _____

very insufficient   if it were between _____ and _____

bad   if it were between _____ and _____

very bad   if it were between _____ and _____

(Goedhart et al., 1977, p.507).

The ordinal verbal evaluations (good, sufficient, bad,

etc.) are then transformed into numbers on a zero-one scale by

identifying them with equal quantiles. This leads to a

hypothetical cardinal WFI as depicted in the following figure.

Figure 2

THE WELFARE FUNCTION OF INCOME
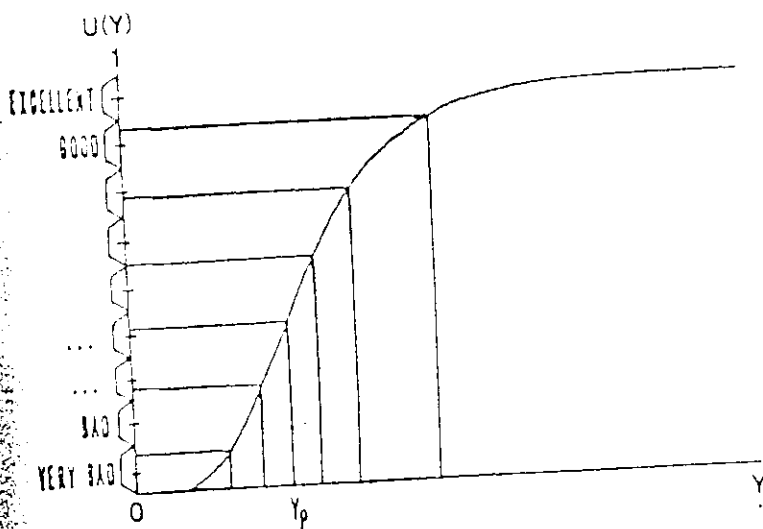
By means of the WFI the Leyden Poverty Line is introduced. It is established by saying that individuals are in poverty if the evaluation of their income is below a certain level, say 0.4 on the zero-one utility scale (van Praag et al., 1982a; 1982b). The WFI gives us the corresponding poverty income (app. Yp on the graph).

Which is the lowest acceptable utility level which yields the poverty line is still a matter of debate and depends on various factors, among which it seems that political ones are very important. Other practical applications suggested 0.35 (Goedhart et al., 1977) and 0.5 (van Praag et al., 1980) as being more appropriate. A consensus has now been reached that the LPL should be drawn somewhere between 0.4 and 0.5 on the zero-one utility scale.

Kapsalis (1981) has proposed an alternative method of estimation whereby a new function should be regressed which includes dummy variables and which should yield better results with a simpler questionaire. Family heads could be asked the following question (p.479):

"How adequate do you consider your family income? (check one)

1. Adequate

2. Fairly adequate

3. Barely adequate

4. Inadequate."

On the basis of where the poverty line wants to be drawn the answers assume values of 1, 0.5 or 0. For example, if the

poverty line is defined as the level of income where people's evaluation of the adequacy of their incomes is between "barely adequate" and "fairly adequate", answer no.1 (adequate) and answer no.2 (fairly adequate) would take the value of 1 while answer no.3 and no.4 would take the value of zero.

As its authors claim, the Leyden method carries with it a number of advantages over other approaches. First, it is stressed that people are the best judges of their minimal needs. It does not rely on specific "economy diets", critical levels of food-to-income ratios, various definitions of basic needs cathegories, etc., but is based on the concept of individual utility. Finally, it is a relatively simpler method. Instead of conducting expensive budget surveys all one has to do is to ask the Income Evaluation Question (IEQ).

Let us examine these advantages. Questioning people about what they think is an acceptable minimum is certainly a step in the right direction. But the statement that "experts", because their incomes are much higher than poverty levels, are more biased than individual respondents (Sharif, 1986) is questionable. Goedhart et al. (1977) found that "respondents minimum income" was positively related to family size and actual income. In other words the minimum income is a relative concept and depends on the level of income to which the individual has been accustomed to. Thus every person's perception of poverty is distorted to a greater or lesser extent. Kapsalis (1981) suggests that one would not have this problem if the respondent's actual income is equal or almost

equal to his <u>minimum income</u> - indirectly implying that best results would be obtained if we interview people living at or around poverty levels. A similar argument is put foreward by Sharif (1986, p.588): "the people at and around subsistence standard are the people relevant to investigation of its analysis and determination". Unfortunately, this is circular argumentation: to establish who is poor we must a priori know who is poor.

The advantage of simplicity is also to be welcomed. Especially for developing countries where funds are usually very limited. But even this simple procedure is no guarantee for satisfactory results. In their analysis of poverty in Europe van Praag <u>et al.</u> (1980) had very low response rates. From eight member countries of the EEC on average 32 percent of the questionaires were returned. Not all of these were completely filled out. In fact they were able to use only 22 percent of the questionaires. The resulting subsamples were no longer representative of the population and susequently the results obtained are highly questionable.

Furthermore two fundamental aspects of the Leyden method leave a lot to be desired (besides the primary dilemma which instantly comes to the mind of the reader - whether utility is at all measurable, and in a cardinal way at that). First is the "equal quantile" assumption. Even though this hypothesis has been empirically tested by Buyze with a positive result (as narrated by Hagenaars and van Praag, 1985), its foundation is unclear. The very fact that we use a lingual scale to depict

levels of satisfaction implies that we are able to indicate direction of changes only. Who is to say, or mathematically to prove, that the difference between "insufficient" and "barely sufficient" is the same as the difference between "good" and "excellent"?

The question of language is interesting in another context, too. Not only can the same expression mean different things to different people but even the lingual experts can disagree on the exact meaning of a certain term. For example, the word "adequate" according to Webster's Ninth New Collegiate Dictionary (p.56) means both "1. sufficient for a specific requirement" and "2. reasonably sufficient". Let us assume that the "specific requirement" is a certain level of calories a person should consume every day. Thus an _adequate_ income from this point of view would be one which enables a person to acquire a diet which satisfies his daily energy requiremnt. From the second definition an _adequate_ income could mean the same thing, but it could also imply a less stringent standard, say, an income which would enable a person to buy a diet which is below the energy requirement standard but which quenches his feeling of hunger. From a nutritional point of view the two diets are not the same and neither is their cost.

These uncertainties can arise in one language. What will happen in a country where more than one language is spoken and where words and expressions are not fully compatible with one another?

Kapsalis's (1981) IEQ variation cannot solve this problem

either. Her questionaire by asking "how adequate do you consider your income?", transformed the IEQ into an income adequacy inquiry. How many people living just above poverty levels would say their income is "adequate" even if it were? Respondents can also interpret it as a question on how acceptable they find their income in relation to their "reference groups". Such a measure does not, ceteris paribus, denote poverty levels but is a type of index of adequacy and satisfaction with present living standards. From this no poverty line can be estimated as poverty is a priori not acceptable to anybody.

The second objection is about the dilemma on where the minimum acceptable utility level should be drawn. It seems to be a mixture of social consciousness and political acceptability, since it will be political bodies who in the end will make the final arbitrary decision. And where exactly the break point will be placed is not without importance. France is a good example. If the Leyden Poverty Line is drawn at 0.4 on the zero-one scale, app. 27 percent of the population of France can be considered to be in poverty. If the utility level is raised to 0.5, the poverty ratio increases to 43 percent (van Praag et al., 1982b). In such cases, when the difference of a mere 0.1 on the utility scale can almost double the numbers in poverty - the poverty line can become the victim of simple party politicking.

3. Conclusion

The choice of the poverty line is crucial to the measurement of poverty. The poverty line distinguishes the poor from the non-poor, with all the repercussions such a measure implies - be they social (e.g., who is egligible for social security support), economic (e.g., where the minimum wage level should be set), or political (e.g., how successful the record of a govrnment has been), and it is also the starting point of all poverty indices. But the poverty line is much more than that. Official poverty lines reflect the attitudes of society and the extent of the welfare state.

All approaches examined so far suffer from defects in one way or another. When it comes to this thesis a further restraint, in the form of limited information on Lebanon, makes the choice even more difficult.

In the final analysis we must agree with Sen that poverty must be seen to be primarily an absolute notion, even though the specification of the absolute levels has to be done in a relativised manner. The basis of any theoretically sound methodology must therefore have an absolutist foundation and a relativist superstructure. Such fusion can be achieved by combining a modified version of Rao's Deprivation point with the Orshansky method.

We have seen that the only somewhat unsatisfactory element of the Orshansky poverty line are the least cost diets as they are subjective in nature and overtly rigorous in expenditure

constraint. One way to get around it is to estimate the expenditure on a least cost diet without actually going through the process of composing one. This can be done with the aid of nutritional surveys and by observing the spending behaviour only of consumers who are just satisfying the minimum food needs. But rather than calculating the cost-of-calorie function, as was done by Greer and Thorbecke, the same information can be gotten from Rao's Deprivation Point (DP). At the DP the basic food needs are just satisfied. Thus it can be said that the expenditure on food at this point constitutes the average cost of an adequate least cost diet.

Estimating the expense of minimum food requirements in this way has its advantages in that it takes into account both consumer behaviour (tastes, traditions, eating habits, etc.) and spatially variable market prices.

Transforming this amount into a poverty line can be done by multiplying it with the inverse of the Engel coefficient as was done by Orshansky. Both of the food cost at DP and the Engel coefficient are obtainable from household budget data and are thus completely objective. Any normativism is cut down to a minimum.

The major question, of course, is how do we decompose this one poverty line to take into account the number of family members? One convienient way to go about it would be to estimate the so-called economies-of-scale factor which is the household size elasticity of household expenditure for the same level of living (van Ginneken, 1980). Application of this

factor to the average poverty line will give us poverty tresholds differentiated by household size.

Unfortunately, regardless of its advantages, the proposed methodology cannot at present be applied to Lebanese circumstances. The only reason being the lack of data on the food/income ratios by income groups and family size. The only figures available which are of recent origin are _average_ household expenditures. We are thus left to choose among the traditional approaches. And for reasons that are already obvious the method of Molly Orshansky is selected.

CHAPTER II

ESTABLISHING POVERTY LINES FOR BEIRUT

A. METHODOLOGY

Poverty has already been defined as a situation where income, representing command over resources, falls below a certain critical level. It is the objective of this part of the thesis to calculate that "critical income level", i.e., the poverty line.

It must be remembered that the poverty lines estimated in this thesis are poverty thresholds applicable for the city of Beirut only. They are metropolitan in character and cannot serve as standards for other parts of Lebanon, be they urban or rural.

1. Choice of Recipient Unit

There is no consensus among economists whether the appropriate unit of measurement of socio-economic well-being is the individual or the family. Yet this question is crucial in the determination of poverty lines for it disinguishes per capita poverty lines from poverty lines which are

differentiated with respect to household size and composition.

Those who advocate the per capita approach (e.g., Anad, 1977) assume that income is shared equally among all members and that family ties are increasingly less important. And from the perspective of income, the labour market employs individuals and rewards them according to their capabilities (Fields, 1980). However, the Middle East still has a very strong sense of family compactness (Zurayk, Shorter and Takce, 1986). In such cases the welfare level of an individual person depends on the amount of income she/he shares of the household to which she/he belongs. This distribution depends on the characteristics of the individual member such as earner status, sex, age, etc. Furthermore, some members engage in economic activity to supplement the income of others if the total family income is perceived as being insufficient (Fields, 1980).

Therefore, the subsequent poverty lines are chosen to be total family expenditure points. They will depend on two variables: household size (number of members) and household composition (age and sex of members).

2. The Time-Span

The period for which poverty lines are calculated is also important. Operationalists have used everything from one year to one week. Those who opt for shorter periods tend to disregard seasonal oscillations in prices and consumption habits while those who choose longer time-intervals (like one

year) forget that a poor family's welfare is tied to current income. Since salaries are in Beirut paid on a monthly basis, one month (30 days) is chosen as the most appropriate time interval to measure family expenditure.

3. Least Cost Diets

At present no least cost food plans have officially been computed for Lebanon. The diets used in this thesis were specially composed by a group of students from the A.U.B. Department of Nutrition under the supervision of prof. Nahla Baba.

Least cost diets can be purposefully compiled only under conditions of no or minimal price changes. In an enviornment of constantly changing market conditions and three digit inflation, as is presently the case in Lebanon, no composed diet can genuinely, over a longer period of time, be regarded as being of minimum expense; not only because price changes are large but also because prices do not alter uniformly but increase/decrease the price differentials between goods. The higher the rate of inflation the shorter the period in which the least cost diets lose their "real" sense of minimum expenditure. Therefore, even though the diets used in this thesis were composed under the prerogative of minimum cost, as time goes by, it is more correct to view them as low cost diets rather than least cost diets.

Ideally every individual's nutritional needs should be

assessed separately (Franklin, 1967). Of course, this is not possible. Even though some other studies use a more elaborate classification system (e.g., Orshansky used 19 age/sex classes) we have chosen 7 age/sex groups to describe the entire population. They are:

Infants	0 - 1 year
Children	1 - 4 yrs
	5 - 10 yrs
Adolescents	11 - 18 yrs
(Boys/Girls)	
Adults	18+ yrs
(Male/Female)	

Composing only one basic diet for all classes and then transforming it into different age/sex diets using a calorie factor (as was done, e.g., by van Ginneken, 1980, is not acceptable as every stage in a person's development requires a different set of nutritional priorities depending on growth, physical activity, etc. This can be done only for groups where the overall dietary needs do not differ except in the energy requirement.

4. Household Size and Composition

The next step in the calculations is to classify families into representative groups with regard to size and composition. At present data is very limited regarding this matter so certain simplifying assumptions had to be made (more will be

said in Section B of this Chapter). On the whole, estimates are made for households varying in size from one to eight-plus members.

Various authors have suggested that family size and composition prototypes should be defined. Unfortunately, cross-tabulations showing family size by number of minor children (and their age) do not exist for Beirut. For this reason a specially devised weighting scheme (based on the population pyramid) is used to classify the number of related children below the age of 19. Special attention has also been paid to the social custom of children residing with their parents beyond the age of adulthood and until the age of marriage.

5. Income-Food Relationship

Food expenditures are translated into poverty lines by multiplying them with the inverse of the average Engel coefficient for Beirut. This percentage is obtained from budget suvrey data originally designed for the construction of a new Consumer Price Index for Beirut (General Confederation of Labour, 1987). The same procedure was used by Joyce and McCashin (1982) for the Irish poverty line estimations. Our calculations are, however, somewhat different from the weight attributed to total food expenditure in the Beirut CPI as we assume that all food is prepared and consumed at home.

6. Prices

The major assumption when it comes to prices is that all foodstuffs are bought at retail. Two sets of prices were used. The first set was collected from various stores in West Beirut during the period April/May 1987 by the students who developed the least cost diets. These were minimum prices of 90 basic foodstuffs and were used to find the combinations of foods for the least cost adequate diets. The diets satisfy three prerequisits: sufficient levels of nutrients to meet medical standards (calories, proteins, etc.), sufficient variety to meet the customsry Lebanese diet, and least cost.

Once the diets were composed and transformed into monthly food baskets a second price survey (43 items) was undertaken in September. This was necessary in order to incorporate spatial cost of living differences that exist within the city and to update the first set of price figures. The second set of prices was then used to calculate the expenditures on food for the 7 age/sex classes mentioned above.

7. The Near Poverty Belt

It is very presumptuous to assume that a single income or expenditure figure can satisfactorily distinguish the poor from the non-poor even if all possible considerations are held in mind. Many families tend to fall in and out of poverty over a period of time. Factors responsible for this are wide and

varried: temporary unemployment, seasonal price and consumption changes, health problems, etc. It is much more realistic to locate a "poverty belt" which pinpoints a type of "danger zone". Families which find themselves within this boundary can be considered to be non-poor under present circumstances, but have a very high probability of falling into poverty should the circumstances change in any negative way. Households which are earning less than the near-poverty line (but more than the poverty line) can be identified as the high risk group.

At present there are no real proposals on how a near-poverty line should be established. We have chosen this critical income level to be ten percent higher than the poverty line for a given family size. This procedure, even though empirically arbitrary in its approach, should yield a satisfactory approximation and indicate the families that might in the near future be poverty stricken.

8. Summary

Poverty lines for household units varying in size and composition from one to eight-plus members were established in the following way:

first, a group of students from the A.U.B. Nutrition Department made a price list of 90 foodstuffs which were employed in the composition of least cost adequate diets for seven age/sex groups;

second, the least cost diets were converted into monthly

foodbaskets and an extensive price survey was undertaken for only those foods (43 items) which were actually used in the least cost diets;

third, household composition prototypes (based on a child weighting system) were assumed;

fourth, total family expenditures on food for households of a given size and composition were then transformed into poverty lines by multiplying them with the inverse of the average proportion spent on food (only food prepared at home) for the city of Beirut.

C. FAMILY SIZE AND COMPOSITION

1. Introduction

For obvious reasons, only one age/sex composition grouping can be assumed for each family size. This very harsh constraint does to some extent distort the picture but without it the number of combinations and separate poverty lines would be so large that policy applications would lose all sense.

The most recent research on matters related to household structure in Lebanon was carried out by Zurayk, Shorter and Takce (1986) when they made a comparative analysis of the social composition of urban households in Beirut, Aman, and Cairo. The analysis of Beirut residents is based on the 1983/1984 Population Laboratory already mentioned (Zurayk and Armenian, 1985).

In order to study the household types Zurayk, Shorter and Takce first determined "a categorization that could describe realistically the composition of households into family units and individuals living together in one household unit" (p.6). A household is seen as composed of persons who can be grouped into basic family units (building blocks) according to the kinds of relationships they have to each other. Since it was found that very few households include non-kin persons (only 3.5 percent in Beirut; mostly maids), the concept of building blocks is of persons in a defined kin relation. The following

building blocks were used:

Type	Definition
A	Couple and their never-married children
B	Couple without any never-married children
C	Parent and his/her never-married children
D	All other persons each assigned as a building block

Studying the parent-child relationship Zurayk, Shorter and Takoe came to the conclusion that reaching adulthood does not seem to be an important decision stage of leaving home and forming new households. In the Middle East this stage is reached at the time of marriage. The mean age of marriage in Beirut for males is 29.5 and for females 26 years. In developed societies the phenomenom of adult children living with their families is not so frequently observed.

Table 11 clearly shows that by far the greatest number of people live in households which are made up of a couple and their never-married children. This is also seen in Table 12 which presents the distribution of individuals in relation to the head of the family. Out of the adult members in a household 90 percent of the males are heads and 71 percent of females are spouses. The contribution of other groups is minimal. From Table 12 we can conclude that the probabilities of any additional adult living in the family and who is not a parent are highest for the "Parent or grand parent or parent-in-law" (38.4%) and "Children" (30.7%) classes. This result is very

Table 11
PERCENT DISTRIBUTION OF HOUSEHOLDS AND PERSONS
BY HOUSEHOLD COMPOSITION IN BEIRUT (1983/84)

Building blocks	Households	Persons
One building block only		
A (Couple & their never-married children)	60	65
B (Couple without any never-married children)	6	3
C (Parent and his/her never-married children	10	7
D (One person residing alone)	4	1
Two or more building blocks		
One A, B or C with D or D's	9	11
Multiple A, B or C without or with D or D's	9	12
Multiple D's	2	1
TOTAL	100	100

Note:
One A, B or C with D or D's – one couple or parent with
never-married children and additonal related persons.
Multiple A, B or C without or with D or D's – a multiple
couple or parent with never-married children, and additional
related person or persons (if any).
Multiple D's – other multiple persons, related or
unrelated.

Source: Zurayk, Shorter and Tekce, 1986, Table 2.

...imortant and we shall refer to it later.

Going back to our division of individuals according to their nutritional needs it is obvious that we can instantly separate two types of children who reside with their parents: children below the age of 19 ("minor children") and those in between the age of adulthood and marriage. Subsequently their share in the total family expenditure will also be different.

Table 13 gives us some indication of the average family size by type of family and, more importantly, the average number of adults and children per family. In family type A (which makes up 60 percent of all households) there are, on average, 3.2 adults and 2.3 children. Interestingly enough, an increase in the family size does not necessarily mean a larger number of children in the family.

2. Choosing Representative Family Prototypes

The primary variable under consideration is family size. According to the results of the Beirut Population Laboratory analysis (Zurayk and Armenian, 1985) the average family size for the city of Beirut is five (with a standard deviation of 2.35). Other sources give higher figures (Table 14), especially if a religious differentiation is applied (Table 15). Tannous (1981) found that an average armenian family (lowest) has 6.7 members and that an average shiia family (highest) has 8.7 members. These numbers are to be considered too high to be taken as representative of Beirut as Tannous also included

Table 12
PERCENT DISTRIBUTION BY RELATION TO HEAD
FOR CHILDREN AND ADULTS IN BEIRUT (1983/84)

Relation	Children
Head	-
Spouse	-
Son or daughter	93
Son-or-daughter-in-law	-
Grand children	5
Other	2
TOTAL	100

	Adults	
Relation	Male	Female
Head	90	13
Spouse	-	71
Son or daughter	5	3
Son-or-daughter-in-law	1	3
Parent or grand parent or parent-in-law	3	7
Other	1	3
TOTAL	100	100

Source: Zurayk, Shorter and Takce, 1986, Table 4.

Table 13
DEMOGRAPHIC INDICATORS OF SIZE AND AGE COMPOSITION
IN TYPE OF HOUSEHOLD COMPOSITION IN BEIRUT (1983/84)

Type of household composition	Average number			
	Size	Children	Adults	% with 60+
A	5.5	2.3	3.2	12
B	2.0	-	2.0	51
C	3.5	0.7	2.6	34
D	1.0	-	1.0	53
One A, B or C with D or D's	5.7	1.9	3.8	65
Multiple A, B or C with or without D od D's	7.3	2.5	4.8	47
Multiple D's	3.0	0.1	2.9	35

Source: Zurayk, Shorter and Takce, 1986, Table 5.

rural areas in his sample. Nevertheless, having in mind all these figures we have chosen to establish poverty lines for families with 1-8+ members.

Table 14
MEAN NUMBER OF PERSONS/HOUSEHOLD, BY REGION

Region	Mean no. of pers./household
Ashrafieh	6.6
Baalbeck	8.7
B.El Barajneh	8.7
Saida	7.7
Kubeiat	7.7
B. Hammoud	7.1
Total pop.	7.7

Source: Tannous, 1981, Table 5, p.20.

Table 15
MEAN NUMBER OF CHILDREN/FAMILY AND MEAN NUMBER OF PERSONS/HOUSE BY RELIGEOUS SECT

Rel. Sect	Child/ Family	Pers/ House
Miscellaneous	5.5	7.4
Sunni	6.2	7.8
Shiia	7.0	8.6
Greek	4.5	6.5
Maronite	5.2	7.3
Armenian	4.2	6.4
Entire pop.	5.9	7.7

Source: Tannous, 1981, Table 6, p.20.

(a) One-Person Households

Table 11 revealed that only 1 percent of all people live in single person households. This is a very low proportion and in sharp contrast to developed countries where this category of households is of increasing importance (Zurayk, Shorter and Takce, p.11).

In order to correctly establish the expenditure needed for a person living alone we have to establish a "typical" individual. From Table 16 we can conclude that this person is female (84%), in her late fifties or early sixties, separated, widowed or divorced, and economically not active. All this indicates that the average one-person family is extremely liable to poverty. Fortunately, this type of household makes up

ly 4 percent of all households in Beirut. But any policy

package against poverty must as one of its primary targets have

this group.

Table 16
CHARACTERISTICS OF PERSONS RESIDING BY THEMSELVES
IN ONE PERSON HOUSEHOLDS IN BEIRUT (1983/84)

Characteristic	Male	Female
Number	16	84
Age Mean	51	64
S.D.	19	13
Marital Status (%)		
Single	62	16
Married	13	2
Sep./Div./Wid.	25	82
Economic Activity (%)		
Active	63	12

Source: Zurayk, Shorter and Tekce, 1986, Table 3.

But, as Orshansky (1965) correctly pointed out, individuals

residing in one-person households are not able to exploit

economies of scale beacuse of fixed costs. Therefore instead of

using a straight per capita measure for a "typical" individual

(the adult female variant) a more realistic approach is to

allocate to one-members an expenditure which is somewhat

higher. Our proposal is to use the expenditure associated with

an adult male.

(b) Two-or-more member families

Households in which two people reside are, as is indicated by Table 13, straight foreward in their size and composition. Family unit type B consists of two adults (presumably one male and one female) with 51 percent of them having individuals above the age of sixty.

Families with a larger number of members are combinations of adults and children. Unfortunately, the average size and composition in Table 13 cannot be rearranged by family size as to indicate composition prototypes since it only reveals the averages for certain household types and not vice versa. Therefore, in order to proceed we are forced to make assumptions about the typical compositions of three-and-above member families.

Tannous (Table 15) has found that, on average, there are approximately two adults per household in larger families. Even though his sample also includes non-urban areas his results are not in contradiction with the findings of Zurayk, Shorter and Takce.

Returning to our "typical" compositions, we have sofar established that a minimum of two adults reside in three-or-more member families. We assume that they are a married couple (i.e., one male adult and one female adult). When it comes to related children (both below and above the age of adulthood) the situation is much less clear. At present no tabulations on family size and age groups of children exsist.

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To overcome this problem we have introduced the concept of the "average child".

(c) Estimating the "Average Child"

In order to be able to "add" children to the parents for a given family size their age and sex must be known. Situations are not the same for a family which has three small children as for a family which has three grown-up school children. To minimize this disparity we have devised a weighting scheme which is based on the population pyramid and sex ratio.

<u>Definition</u>: The weight $w_i(p_i, s_i)$ on the child class i equals the percentage of that child class in the total number of children.

Abiding by all that has been said so far, seven basic types of child classes exsist. They are:

Class No.	Age/Sex
1	0 - 1
2	1 - 3
3	4 - 10
	11 - 18:
4	Boys
5	Girls
	18 - 30(i.e., mean age of marriage):
6	Males
7	Females

Straight away we see that some age/sex groups are

differentiated by sex and some aren't. Furthermore, the population pyramid, however, does not give us an indication of how many adults are married between the ages 18 - 30 and how many are not and thus if they are never-married children residing with their parents in one household or if they are independent adults with a family unit of their own. We must therefore divide the above classification into two sub-groups: children below the age of 18 (minor children) and adult children. Even though the same basic weighting scheme will be applied in both cases, this step is necessary for purely operational purposes.

If w_i is the weight given to child class i, p_i the percentage of this class in the total population, and s_i the percentage of males, $(1-s_i)$ the percentage of females, we can say that

$$w_i = w_i^M + w_i^F$$

where $w_i^M = p_i(s_i)$

is the weight given to males in child class i,

and $w_i^F = p_i(1 - s_i)$

is the weight given to females in child class i.

For classes which are not differentiated by sex (i.e., classes 1, 2, and 3) $s_i=0$, and subsequently $w_i=p_i$; for the adult child group (class 6 and 7) $p_i=1$, and thus the weight for males is $w_i^M =s_i$ while the weight for females is $w_i^F =(1-s_i)$.

This weighting system can best be explained by an example. Assume that there are only two child classes (A & B) with the

following distribution:

Class	Percent(p_i)	% of Males(s_i)
A	60	30
B	40	40

In this case the weights are as follows:

$$w_A^M = 0.6(0.3) = 0.18$$

$$w_A^F = 0.6(0.7) = 0.42$$

$$w_B^M = 0.4(0.4) = 0.16$$

$$w_B^F = 0.4(0.6) = 0.24$$

The entire population distribution for the city of Beirut is presented in Table A.IV.1. From this Table we were able to calculate our weights for all the classes (Table 17). Multiplying the expenditure on food of every child group by its weight and then adding them are we able to estimate expenditures for food for an average child (Table 18). Further explenations on the calculations are found in Appendix IV.

A slight discrepancy exists between the division proposed by nutritionists (see Table 4) and the 5-year intervals commonly used in population pyramids. Our "nutritional" division will therefore be weighted by age groups which are not identical. However this incompatibility will not affect the results as the discrepancy is not large:

Table 17
WEIGHTS USED FOR THE ESTIMATION
OF THE AVERAGE CHILD

A. Minor Children

Age Group	Pi	Si	Wi
0 - 1	0.047	-	0.047
1 - 4	0.159	-	0.159
5 - 9	0.222	-	0.222
10 - 19	0.572		
Boys		0.505	0.289
Girls		0.495	0.283
TOTAL	1.000	1.000	1.000

B. Adult Children

Age Group	Pi	Si	Wi
20 - 30	1.000		
Males		0.465	0.465
Females		0.535	0.535
TOTAL	1.000	1.000	1.000

Table 18
MONTHLY EXPENDITURE ON FOOD
FOR THE AVERAGE CHILD (L.L.)

Age/Sex	Cost of Monthly Food Basket	Weight	Total
A. For Minor Child			
0 - 1	2441.50	0.047	114.75
1 - 3	2941.70	0.159	451.85
4 - 10	3855.95	0.222	855.00
11 - 18			
Boys	5259.00	0.289	1519.55
Girls	4044.60	0.283	1144.60
TOTAL EXP. ON FOOD FOR MINOR CHILD			4086.75
B. For Adult Child			
18 - 30			
Males	5475.60	0.465	2546.15
Females	4106.70	0.535	2197.10
TOTAL EXP. ON FOOD FOR ADULT CHILD			4743.25

Source: calculations based on Tables 10 &17.

Nutritional Age Groups	Weighted by Age Classes
0 - 1	0
1 - 3	1 - 4
4 - 10	5 - 9
11 - 18	10 - 19
19 +	20 - 30

(d) Conclusion

Having in mind all that has been said so far, the final prototype family compositions are as follows:

1. for one person households an adult male is taken to be representative;

2. for two member families - a married couple;

3. for three member families - a married couple and a minor child;

4. for four member families - a married couple and two minor children;

5. for five member families - a married couple, two minor children, and an adult child (remember that the probability of an additional adult is largest for the heterogenous group of "parent or grand parent or parent-in-law" and since the probability of an adult child being the aditional adult is almost the same, we have chosen the third adult to be an adult child);
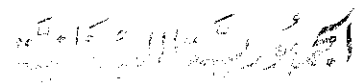
6. for six member families - a married couple, an adult

child, and three minor children;

7. for seven member families – a married couple, an adult child, and four minor children;

8. for eight (and more) member families – a married couple, two adult children, and four minor children.

The complete tabular overview is given in the following matrix:

Size of Household	Composition
1	Am
2	Am+Af
3	Am+Af+ C
4	Am+Af+ 2C
5	Am+Af+ Ac+2C
6	Am+Af+ Ac+3C
7	Am+Af+ Ac+4C
8	Am+Af+2Ac+4C

Am – adult male;
Af – adult female;
Ac – adult child;
C – minor child.