An Urban Poverty Line Estimate

ABDUL WASAY*

Introduction

A fundamental policy objective in developing countries is the reduction of poverty and the provision of an adequate level of income sufficient to allow for the basic consumption needs of the lowest income group. It is not an easy objective because resources are limited. Moreover, the definition of basic needs itself is difficult since these needs vary from region to region, and over time. Nevertheless, the poverty problem is sufficiently important to justify the development of practical measures of at least the biological and physical needs: food, clothing, and shelter. With such measures, a translation of basic consumption needs from physical to expenditure units and the calculation of an absolute poverty line is possible.

The purpose of this paper is to calculate an urban poverty line on the basis of minimum basic needs approach.[1] The methodology of the basic needs approach is not exact because it is inevitably based on value judgements concerning minimum requirements. Nevertheless, by making these assumptions explicit and showing their relative importance in the calculation of the minimum expenditure necessary to satisfy basic needs, an understanding of the link between these needs and minimum income is possible. Previous estimates of the poverty line for Pakistan, [1] and [6], do not demonstrate this link.

The calculation of a poverty line can be instrumental in determining a minimum incomes policy. It does not, however, constitute a recommendation that a minimum wage be set along these lines, since its determination depends on a much broader range of considerations such as resource availability constraints and overall development priorities. No attempt to quantify these considerations is made. However, some initial insight into the magnitude of these considerations is possible through the use of the poverty line to isolate an urban poverty target group. An attempt is made at the latter for Rawalpindi city.

[1]For an application of the basic needs approach to other countries, see [12].

Poverty Line

For the estimation of an urban poverty line, a family siz of five, consisting of two adults and three children under age 9, is assumed. For this family composition, minimum requirements for current consumption are ascertained and their expenditure costs are calculated. Minimum physical requirements are assumed for food, clothing, and housing; and miscellaneous items like tea, tobacco, and services such as haircuts. To the minimum expenditure calculation a saving allowance of 10 percent is added.

Food requirements are determined on the basis of the minimum nutritive requirements for a healthy growth and maintenance of the human body. Nutritive requirements are defined in terms of calories, proteins, fats, minerals and vitamins, etc. In the paper, the calculation of the minimum requirements is limited to calories and proteins.

In Pakistan, the protein requirements are generally adequately met, as shown in Table 1. It will be seen from the table that the protein content of the food consumed by a family with an income of less than Rs. 300.00 per month is in excess of the minimum protein requirements.

Table 1

Protein Content of Food Consumed by a Family of Five with Income Less than Rs. 300.00 per month

Food items	Per capita consumption per month 1971-72	Protein content
(1)	(2) (kg)	(3) (gm)
Meat	0.458	87.02
Milk	3.677	147.12
Rice	1.080	72.38
Wheat	11.927	1,228.12
Pulses	0.253	46.80
Vegetables	0.686	4.22
Potatoes	0.625	10.89
Vegetable Oil	0.370	—
Sugar	0.597	—
Total per cpita intake per month	=	1,596.55
Total intake by a family of five per month	=	7,982.75
Total minimum requirement for a family of five per month	=	5,598.00
Excess (per month)	=	2,384.75

(43% over requirements)

Source: [8] for data in col. 2.

However, it should be noted that the intake figure has an upward bias since the Household Income and Expenditure Survey [8] comprises only of structured households. Also that the minimum requirements figure given in the table is for a family structure of an adult male, an adult female, and three children whereas the total intake figure is for a family of five without regard for either sex or age. The two figures are not directly comparable, therefore. For instance if a family composition of five adults is assumed—an obvious extreme assumption—then the minimum requirements figure rises to 8,760 (grm) and exceeds the computed intake figure of 7,983 (grm). The excess, however, is small and, hence for a non realistic family size composition it would be negligible, if not negative.

Still, there is another aspect of the quality of the protein intake. Relative to vegetable protein, animal protein is of superior quality as it contains amino-acids which are essential for healthy growth. Generally animal protein should comprise one-half of the total minimum protein intake. However, the 1971-72 household consumption pattern [8] indicates that the animal protein intake is only 15 percent of the total protein intake. Clearly, this is a problem which deserves attention. The problem is complicated as it is not obvious that a change in the consumption pattern is possible or, if possible, is attainable without relative price changes due to supply unavailabilies. Therefore, the problem is not considered further.

Calorie requirements, however, are not adequately met in Pakistan. Total calorie intake is, therefore, used as the criterion for establishing the required quantities of different food items. Since food habits do not change quickly, the food items to provide the required number of calories are selected on the basis of the existing pattern of consumption. The desired consumption levels of the various food items are raised proportionately until the implied caloric intake equals the minimum caloric intake requirement.

This requirement varies, of course, according to body weight, age, sex, etc., and tables of minimum caloric intake have been compiled by a joint committee of FAO/WHO, taking each of these factors into account. The Annual Plan 1975-76 [9] gives caloric intake levels for different age and sex groups adjusted for conditions in Pakistan and these are shown in Table 2. The nutritive requirement for a family of five, consisting of two adults and three children, is derived from the data and are reported in Table 3. The latter shows that a family of five must have 9,755 calories per day.

Table 2

Minimum Nutrition Requirements by Size and Age

Sex	Age (years)	Calories required per day	Protein required per day (gm)
Child	(0—9)	1,744	29.82
Male	(10+)	2,512	52.06
Female	(10+)	2,011	45.08
(after allowance for pregnancy and lactation)			

Source: [9]

Table 3

Minimum Nutrition Requirement for a Family of Five

Members	Calories required per day	Protein required per day (gm)
3 Children	5,232	89.46
1 Adult (Male)	2,512	52.06
1 Adult (Female)	2,001	45.08

Source: Table 2.

To determine what pattern of food consumption is necessary to achieve this level, the following calculations are undertaken. First, the existing amounts of calories contributed by each major food item in the budgets of low income families (less than Rs. 300.00 expenditure per month) are determined from urban household survey data and standard weight-to-calorie ratios. The percentage of the total caloric intake attributable to each item is then applied to the required minimum caloric intake of 9,755 to calculate the desired consumption levels of the various food items. These levels are shown in column 5 of Table 4. Finally given these levels, the minimum expenditure on each item is easily obtained by multiplying the quantity levels of commodities by the respective commodity prices. These calculations are given in columns 6-8 of Table 4. The table shows that, using November 1975 prices, the total minimum rupee expenditure necessary to achieve the minimum caloric intake requirement, while preserving recent urban consumer expenditure patterns, is Rs. 176.00.

Several theoretical weaknesses in this approach should be noted. If expenditures of the lower income families were to rise, it is unlikely that the shares of each food item in the total budget would remain constant, for income elasticities of demand are known to vary among food items. Moreover, any large-scale public programme to ensure basic needs for food among the poorest groups would most probably cause a shift in the structure of relative food prices as the supplies of some items would be less elastic than others and the prices of these goods would tend to rise faster. However, for practical purposes the estimate may be regarded as reasonably satisfactory.

There is no general agreement as to what the basic requirements of clothing, housing, and miscellaneous consumer items are. Until standards relevant to Pakistan are established, some indirect method must be used. The levels of urban expenditures on non-food items in previous years are shown in Table 5. The ratios of expenditures for these categories of items to food expenditure appear to be fairly constant. It is, therefore, assumed that the rupee expenditures on these items bear the same proportion to the basic needs level of food expenditures as the actual levels of expenditure on these items bear to the present level of food expenditures.[2] The figure for rent seems to

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[2] This proportion will tend to change with the increase in income since food expenditures will rise less than proportionately as compared to non-food.

Table 4

Food Consumption Budget According to the Minimum Caloric Requirements, Maintaining the Consumption Pattern of 1971-72 for Income Group Less than Rs. 300.00 per month

Food Item	Per capita consumption per month (1971-72) (kg)	Calories produced by quantities in col. 1	Calories produced as percentage of total caloric in take	Calories required per day for a family of five	Quantities needed to meet require-ments in col. 4 (kg/day)	Quantities needed per month (kg)	Prices: Nov., 1973 (Rs. Kg)	Expenditure per month for a family of five
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Meat	0.458	1,338.83	2.30	225.34	0.07708	2.3124	5.36	12.39
Milk	3.677	3,713.77	6.42	626.28	0.62008	18.6024	2.55	47.44
Rice	1.080	3,887.97	6.72	655.54	0.18210	5.4630	2.08	11.36
Wheat	11.927	41,624.99	71.93	7,016.83	0.01056	60.3168	0.95	56.09
Pulses	0.253	872.83	1.51	147.30	0.04270	1.2810	2.08	2.66
Vegetables	0.686	390.97	0.68	66.33	0.11638	3.4914	2.41	8.41
Potatoes	0.625	437.09	0.76	74.14	0.10601	3.1803	1.61	5.12
Vegetable Oil	0.370	3,288.94	5.68	554.09	0.06233	1.8699	10.36	19.37
Sugar	0.597	2,310.32	3.99	389.23	0.10058	3.0174	4.29	12.94
	—	57,865.76	100.00	9755.00	—	—	—	175.78

Source: (i) [8] for col. 1.
(ii) [7] for col. 7.

Table 5

Expenditure on Clothing, Housing, and Other Items as a Percentage of Food Expenditure for Income Groups Less than Rs. 300.00 per month

Year	Clothing and Footwear	Rent	Other Items
1968—69	18.33	19.13	40.83
1969—70	19.12	19.00	41.24
1970—71	19.58	19.10	41.15
1971—72	18.55	18.92	41.20

Source: [8].

be on the low side when compared with what families of five persons at present pay for rented quarters in Rawalpindi, based on a survey conducted by the PIDE in 1975: the average level of rent for houses, many of which did not have sanitary facilities and running water, is Rs. 50.00. The estimates of the minimum expenditure on other non-food items clearly require further checking and refinement. Table 6 sums the cost of food and non food items and, after a ten percent allowance for saving, the total minimum income requirement —the urban poverty line—is Rs. 346.00 per months.

Table 6

Budget for a Family of Five

Items	Non-food expenditure as a percentage of food expenditure (1971-72)	Expenditure Rs. per month (Nov. 1975)
Food	—	175.78
Clothing and Footwear	18.55	32.61
Rent	18.92	33.26
Rest of the Items	41.20	72.42
Total Expenditure		314.07
Add 10% allowance for saving		31.71
Minimum income required		345.48

Target Group

A natural application of the poverty line is to identify an urban poverty target group. Clearly, the size and characteristics of such a group are important information for the formulation of a poverty-reducing policy of the government. Conceptually, the group is easy to identify: it consists of all individuals who earn an income less than the poverty line. Empirically, however, the group is difficult to identify at the national level due to inadequate household income data. Data do exist, though, for Rawalpindi city and this is used to identify the group.

Data for Rawalpindi city is from the PIDE 1975 Socio-Economic Survey of 1,000 households. The survey yields 959 heads of household in the labour force. On the average there are four dependants supported by each earner.[3] Fortunately, this ratio is consistent with the assumption of the previous section. Since 56 percent of the earners reside in owned dwellings, the rental portion of the minimum expenditure for this group is deleted to ensure compatibility.

The 959 household heads are grouped in Table 7 by income, hours worked, and desire for more work. (For comparison, similar data is also reproduced for Lima-Callao).[4] In Rawalpindi, 324 earners, 33.9 percent, earn less than the poverty line (sum of groups 3, 5 and 6). Out of these, 51.2 percent earn less than Rs. 270.00, the income of the lowest paid government employee (not shown in the Table). Of all household heads, only 66.4 percent are adequately employed; the remainder 32.7 percent are underemployed; and 0.8 percent unemployed. The latter unemployment figure appears to be low, but since the data is restricted to household heads only, a low figure is not unexpected.

An interesting aspect of Table 7 is that the poverty and underemployed groups roughly coincide. The poverty group consisting of categories 3, 5 and 6, and the underemployed group consisting of categories 4, 5 and 6 largely overlap since categories 3 and 4 are relatively small. A similar pattern is evident for Lima-Callao. For both poverty and underemployed groups, the largest common category is 5, comprising those individuals who work more than 35 hours per week but earn income below the poverty line. This makes clear that poverty is a problem of inadequate income which results from under-employment. The importance of employment generation is, therefore, evident.

An investigation of the socio-economic characteristics of the poverty group reveals that the general characteristics of the poor are not unexpected. Most of them are unskilled production and service workers: 42 percent and 36 percent respectively. They have little human capital; 60 percent have less than primary education while 74 percent have no technical education. Among minority groups, the majority are poor. Of the female household heads in the labour force, 80 percent are in the poverty group.

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[3]Average family size and the average number of earners for family is 6.1 and 1.2, respectively. In 1971-72 the latter figure for urban households with family income up to Rs. 300.00 varies between 1 to 1.6 depending upon the size of the family [8].
[4]Source: [11, p. 70].

Table 7

Income and Work-time Data for Rawalpindi City and Lima-Callao Metropolitan Area

	Characteristics of Group			Percentage	
Group	Income Per Month	Hours worked per week	Desire for more work	Rawalpindi City 1975	Lima-Callao Metropolitan Area 1967
1.	Above or at poverty line	35 or more		64.1	64.7
2.	Above or at poverty line	Less than 35	Do not want more work	0.8	3.3
3.	Below poverty line	Less than 35	Do not want more work	1.5	2.2
		Total Adequately Employed ..	..	64.4	70.2
4.	Above or at poverty line	Less than 35	Want more work	0.4	3.6
5.	Below poverty line	35 or more		30.8	19.5
6.	Below poverty line	Less than 35	Want more work	1.6	2.5
		Total Underemployed	..	32.8	25.6
		Unemployed		0.8	4.2
	Total	..	..	100.0	100.0

Source: (*i*) *Socio-Economic Survey of Rawalpindi City*, 1975. *PIDE, Islamabad.*
        (*ii*) *Peru survey* [11, p. 70].
Note: poverty line for Lima-Callao is 1,200 soles.

Nonetheless, the principal characteristic is noteworthy. Fifty nine percent of the poor are married males in their prime working age (25-35 years old). For these, poverty emerges as an important problem.

Conclusion

The paper estimates the minimum income required for a family of five, including a ten percent allowance for saving, at Rs. 346.00 per month. This estimate is defined as the absolute poverty line. This is a little less than half of the national average income of a family of five.[5] At present, the lowest

[5]Per eapita income at current market prices in 1975-76 is at Rs. 1701.00 per annum or Rs. 142.00 per month [10, Table 6]. At this rate a family of five members should have a monthly income of Rs. 710.00 per month.

paid government employee earns Rs. 270.00 per month. This means that if the employee has the assumed family structure, he needs an additional income of Rs. 76.00 per month, or 28 percent more of what he gets now, to be above the poverty line and to meet his nutritional and other needs.

Naturally, family size varies among households so that the minimum income requirement also varies. The monthly requirement for alternative family sizes is: Rs. 115.00 for a single male, Rs. 183.00 for a childless couple, and Rs. 284.00 for a couple with two children. Conceptually, a minimum income should be linked with family size; however, from a policy perspective this is an undesirable incentive for raising large families as wage earners normally have a "money illusion".

The paper estimates that about 34 percent of Rawalpindi City household heads in the labour force earn less than the poverty line. The majority are married males in their prime working age. Furthermore, most are under-employed. The policy implication of the latter is that a minimum incomes policy should not aggravate—rather, it should increase—existing employment opportunities.

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