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AN URBAN POVERTY LINE ESTIMATE

Abdul Wasay

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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 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 approach¹. 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 assumption 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 author is Associate Staff Economist at the Pakistan Institute of Development Economics (PIDE), Islamabad. He is grateful to Stephen E. Guisinger and Khalil A. Hamdani for their constant encouragement and help. He is also thankful to Ole D.K. Norbye for comments on an early draft of the paper.

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

The calculation of a poverty line can serve as a rough guide in the determination of 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 on 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.

A poverty line

For the estimation of an urban poverty line, a family size 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. Physical minimum 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 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, even by the lowest income group as shown in Table 1. It will be seen from this 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 minimum protein requirements.

Calorie requirements, however, are not generally 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 gives caloric intake levels for different age and sex groups adjusted for conditions in Pakistan and these are shown in Table II. The nutritive requirement for a family of five, consisting of two adults and three children, is derived from this data and is reported in Table III. The latter shows that a family of five must have 9,755 calories per day.

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) is determined from urban household survey data and standard weight-to-caloric ratios. The percentage of 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 are shown in column 5 of Table IV. Finally given these levels, the minimum expenditure on each item is easily obtained by multiplying the quantity levels by the respective

commodity prices. These calculations are given in columns 6-8 of Table IV. 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, as income elasticities of demand are known to vary among food items. Moreover, any large-scale public programme to ensure the 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 utilized. The levels of urban expenditures on nonfood items in previous years are shown in Table V. The ratio 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. The figure for rent seems on the low side when compared with what families of five persons presently pay for rented quarters in Rawalpindi, based on a survey conducted by the FIDE 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 levels of the other, nonfood items clearly require further checking and refinement. Table VI sums the cost of food and nonfood items and, after a ten percent allowance for saving, the total minimum income requirement--the urban poverty line--is Rs. 346.00 per month.

A target group

A natural application of the poverty line is to discriminate 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 does 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 dependents supported by each earner². 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 VII by income, hours worked, and desire for more work; (for comparison, similar data is also reproduced for Lima-Callao)³. In Rawalpindi, 324 earners,

²Average 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 incomes up to Rs. 300.00 varies between 1 to 1.6 depending upon the size of the family / 8 7

³Source: / 11, P.707.

33.9 percent, earn less than the poverty line (sum of categories 3, 5 and 6). Out of these, 51.2 percent earn less than the income of the lowest paid government employee, Rs. 270.00 (not shown in the Table). Of all household heads, only 66.4 percent are adequately employed: the remainder are underemployed, 32.7 percent, and unemployed, 0.8 percent. 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 VII 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. The policy implication appears to be that poverty is a problem of inadequate income which results from underemployment.

Conclusion

The paper estimates the minimum income required for a family of five, including a ten percent allowance for savings, at Rs. 346.00 per month. This is defined as the absolute poverty line. This is a little less than half of the national average income of a family of five⁴. At present, the lowest 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,

⁴Per capita income at current market prices in 1975-76 is at Rs. 1701.00 per annum or Rs. 142.00 per month / 10, table 67. At this rate a family of five members should have a monthly income of Rs. 710.00 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 in favour of large families as wage earners normally have a "money illusion".

Most of the individuals who earn less than the poverty line are underemployed. Investigation of the socio-economic characteristics of this group is desirable and deserves further study.

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TABLE I

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

	Per capita consumption per month 1971-72*	Protein content
	(kg)	(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 capita 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	=	<u>5,598.00</u>
EXCESS (per month)	=	2,384.75

(43% over requirements)

* Source : [87].

TABLE II

Minimum Nutrition Requirements

<u>Sex</u>	<u>Age</u>	<u>Calories required per day</u>	<u>Protein required per day (gm)</u>
Child	(0-9)	1,744	29.82
Male	(10+)	2,512	52.06
Female (after allowance for pregnancy and location)	(10+)	2,011	45.08

Source: Calculations based on Annexures I and II
 PP. 84-85, Annual Plan 1975-76, Planning
 Division, Government of Pakistan.

TABLE IIIMinimum Nutrition Requirements for a
Family of Five

<u>Members</u>	<u>Calories required per day</u>	<u>Protein required Per day (gm)</u>
3 Children	5,232	89.46
1 Adult (Male)	2,512	52.06
1 Adult (Female)	2,011	45.08

Source : Table II.

TABLE IV

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

Food Item	Per capita consumption per month (1971-72) (kg)	Calories produced by quan- tities in col. 1 (Calories)	Percentage of Calories produced	Calories required per day for a family of five (Calories)	Quantities needed to meet requ- irements in col. 4 (Kg/day)	Quantities needed per month (Kg)	Prices: Nov., 1975 (Rs./Kg)	Expenditure per month for a family of five
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Meat	0.458	1,338.83	2.31	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	0.93	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	97.55	-	-	-	175.78

Source: Col. 1 [8], Col. 7, [7].

TABLE V

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

<u>Year</u>	<u>Clothing & Footwear</u>	<u>Rent</u>	<u>Other Items</u>
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: Household Income, and Expenditure Surveys:
1968-69 to 1971-72.

TABLE VI

Budget for a Family of Five

	Expenditure as a percentage of food (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

TABLE VII

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

Group	Characteristics of Group			Percentage	
	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	More than or 35		64.1	64.7
2.	Above or at poverty line	Less than 35	Does not want more work	0.8	3.3
3.	Below poverty line	Less than 35	Does not want more work	1.5	2.2
Total Adequately Employed				64.4	70.2
4.	Above or at poverty line	Less than 35	Wants more work	0.4	3.6
5.	Below poverty line	More than 35		30.8	19.5
6.	Below poverty line	Less than 35	Wants more work	1.6	2.5
Total Underemployed				32.8	25.6
Unemployed				0.8	4.2
Total				100.0	100.0

Source: Socio-Economic Survey of Rawalpindi City, 1975, PIDE, Islamabad.
Peru Survey / 11, p. 707.

Note : Poverty line for Lima-Callao is 1,200 soles.

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