

Distribution of Public Health and Education Services

N Bhattacharya
B Dey

In any discussion on inequalities in level of living, it is necessary to consider the distribution of consumption outside the domestic sector, especially the consumption of free health and educational services rendered by government and other public bodies. It is necessary to know, in a rough way, at least, in what way the benefits of such free public services are being shared by people in different levels of the society.

No such information seems to be available in India at present.

The Planning Division of the Indian Statistical Institute has started a random sample survey for a broad study of the position in rural and urban sectors of West Bengal. The present paper is a preliminary analysis of the data collected in the pilot enquiry during October 1963 to May 1964 in MADHYAMGRAM, an urbanised village in the district of 24 Parganas, West Bengal, only 18 kilometers away from Calcutta,

[The authors are indebted to M Mukherjee, Head of the Planning Division, for suggesting the problem, and to S Nandi, S Dhar, P Mazumdar and A Mondal for computational assistance.]

THE village with 468 households was subjected to complete enumeration. For each household in the village, a schedule was filled in by the interview method. The following items of information were collected in this schedule ;

- (a) household size and composition;
- (b) average monthly consumer expenditure on all items during the last year;
- (c) educational particulars of different members with details of receipt of public education services during the last year in the form of fees exempted, scholarships/stipends, and in other forms; and
- (d) receipt of free public health services during the last quarter by different members of the household.

By last year and last month will be meant last 365 days and last 30 days, respectively, preceding the date of survey.

Two investigators carried out the field work and the households were divided between them at random. This gave two interpenetrating subsamples of the sample households. We do not present the sub-sample estimates but they were used at the stage of drawing conclusions.

A preliminary analysis of the data has been reported here. The objective is to show how the benefits of (free) public health and educational services are being shared by different sections of the population in this particular village. It is obviously unsafe to generalise from one village which has

more than one hospital within its boundary and a number of primary and secondary schools.

Attempts were made in this pilot enquiry to collect cost data from medical and educational institutions. It may be possible to present in a subsequent note the estimated money values of benefits received by different groups of people. But this line of work is extremely laborious and the results may not be worth the trouble. In any case, for a large scale enquiry collection of cost data would be practically impossible.

Material and Analysis

As already stated, the investigators collected figures for the average monthly value of domestic consumer expenditure) by each household of all items (usually called total

hold, averaged over the last year, i.e., 365 days preceding the date of survey. Only a rough figure was obtained through a few minutes' enquiry. The households were then ranked in an ascending order of levels of living as measured by per capita total consumer expenditure per month; ten decile groups were then formed by grouping households contiguous in the ranking. The bottom decile comprised households having the lowest values of per capita consumer expenditure; the second decile from bottom, the households having the next lowest values of per capita expenditure; and so on. The limits of per capita expenditure were so determined that each group contained nearly 10 per cent of the total population in the 468 households surveyed (see Mahalanobis [3]).

Table 1 shows the formation of the decile groups. The average household

Table 1: Total Consumer Expenditure and Share of Total Consumer Expenditure by Decile Groups- Average Month of Last Year

Decile Group (Per cent)	Number of		Average Household Size	Consumer Expenditure (Rs) Per Person Per Month		Per Cent Share of Consumer Expenditure
	Households	Persons		Upper Limit	Average	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
0-10	45	310	6.89	14.28*	12.04	4.21
10-20	47	313	6.66	18.18	16.42	5.80
20-30	50	310	6.20	20.00	19.50	6.82
30-40	39	308	7.90	22.72	22.45	7.80
40-50	46	313	6.80	25.00	24.73	8.73
50-60	43	314	7.30	29.16	28.42	10.07
60-70	56	313	5.59	33.33	31.80	11.23
70-80	40	306	7.65	36.36	35.70	12.33
80-90	47	313	6.65	41.66	39.06	13.79
90-100	55	317	5.76	400.00	53.75	19.22
Total	468	3117	6.66	400.00	28.44	100.00

* The lowest observed value of per capita total consumer expenditure was Rs 8.57 per month.

size is 6.66 for the entire population and shows very little trend over the decile groups. The lowest observed value of per capita monthly consumer expenditure was Rs 8.57, and the overall average is Rs 28.44. These figures show that Madhyamgram is not a typical village. Column (7) of the Table shows the inequality in the distribution of domestic consumer expenditure. Whereas the bottom decile gets a share of only 4.21 per cent, the top decile has 19.22 per cent of the aggregate consumer expenditure of the entire Madhyamgram population. This column is repeated in the subsequent tables.

Table 2 shows the distribution of all students by decile groups. The different columns are self-explanatory. 'Students' include all boys and girls continuing their studies in public educational institutions like schools and colleges, universities and other institutions which impart training to the students and are financed and/or governed partially or wholly by public

Previous type studies [1] have shown that such quick methods give estimates consistently lower but highly correlated with the usual estimates of total consumer expenditure obtained through detailed family budget schedules. Quick estimates are sufficient for the present purposes of ranking the households by per capita total consumer expenditure: There is no point in spending 3 hours per household for estimating total consumer expenditure, when the main enquiry on consumption of public services required only half an hour per average household.

bodies. So, this excludes those institutions which are run with a motive of making and appropriating profit by individuals or groups of individuals. As for example, tutorial schools and colleges, some of the commercial colleges, K G schools etc, run under proprietorship are excluded from our scope. Students are classified under three heads: (i) primary (infant class to class IV), (ii) secondary (class V to X or XI) and (iii) others (colleges and other institutions conducting degree or diploma course).

Table 3 shows the distribution of free students by decile groups. The purposes of this table, two half-free-studentships were together taken as equivalent to one free-studentship.

Table 4 shows the distribution of patient-visits to outdoor departments of medical institutions and patient, free-bed days in indoor departments by decile groups of the population. Medical institutions include hospitals, charitable dispensaries and health centres run by government and also by local bodies. It should be appreciated that only the curative side of public health services has been considered here, and the preventive side has been left out.

The money value of a free-studentship is not the same for all students. Also, all students, including free students, may really be enjoying some subsidies. Similarly, outdoor services include services of physicians, distribution of medicine, operations, X-rays and pathological tests. In the indoor department, in addition to medical treatment, the patient receives food, accommodation and nursing care. The

money value of services, etc, will vary from patient to patient and from visit to visit. The indicators chosen in this study, viz, the number of free students, the number of patient-visits to outdoor departments and the number of free-bed days stayed in indoor department, are only first approximations to the money values of benefits.

Statistical Finding

Number of students: There is a clear tendency of the number of all students increasing over the decile groups from about 70 in the bottom decile to about 105 in the top decile. Average is 90 per decile. In terms of percentage of population, the rise is from 22 or 23 per cent to 33 or 34 per cent roughly. Average is 28 per cent. Hence the percentage share of the ten deciles in the total number of students rises from about 8 to 12. Figures for some deciles seem to be erratic; in general, one should smooth the figures before drawing inferences.

No such trend is found in the number of primary students which constitute about 50 per cent of all students. All deciles have about 44 students (i.e., 15 per cent of population). Only the top decile shows a lower figure, viz, 28 (9 per cent of population). So each decile gets about 10 per cent of all primary students,

There is a clear tendency of the number of secondary students increasing over the decile groups, at a steeper rate than the number of all students, from about 25 in the bottom decile to 55 in the top decile, the average being 41. In terms of percentage of popula-

Table 2; Distribution of Students by Decile Groups—Last Year

Decile Group (Percent)	Percentage of persons	Share of Consumer Expenditure	Percentages of Students				Students as Percentage of Population			
			Primary	Secondary	Others	Total	Primary	Secondary	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
0—10	9.95	4.21	9.57	6.08	...	7.44	13.55	8.06	...	21.61
10—20	10.04	5.80	11.62	6.08	...	8.44	16.29	7.99	...	24.28
20—30	9.95	6.82	10.25	9.49	4.00	9.56	14.51	12.58	0.65	27.74
30—40	9.88	7.80	10.02	8.52	2.00	8.89	14.28	11.36	0.32	25.97
40—50	10.04	8.73	7.74	10.46	6.00	8.89	10.86	13.74	0.96	25.56
50—60	10.07	10.07	12.53	12.41	8.00	12.22	17.52	16.24	1.27	35.03
60—70	10.04	11.23	10.48	9.73	10.00	10.11	14.69	12.78	1.60	29.07
70—80	9.82	12.33	10.25	9.98	20.00	10.67	14.71	13.40	3.26	31.37
80—90	10.04	13.79	11.16	13.38	20.00	12.67	15.65	17.58	3.19	36.42
90—100	10.17	19.22	6.38	13.86	30.00	11.11	8.83	17.89	4.73	31.54
Total	100.00	100.00	100.00	100.00	100.00	100.00	14.08	13.19	1.60	28.87
Total (Absolute value)	3117		439	411	50	900				

tion these figures are 8, 18 and 13 roughly. Hence the percentage share of all secondary students rises from 6 per cent to 14 per cent over the ten deciles.

Regarding students under the 'others' category, the trend is steeper, because the number rises from 0 in the two lowest deciles to 15 in the topmost, the average being only 5. In terms of percentages of population these figures are 0, 5 and 2 roughly. Hence the percentage share of 'other' students rises from about 0 per cent to about 30 per cent over the ten deciles.

To sum up, then, the percentage share of the ten decile groups in the total number of students is more or less the same in the primary stage, while in the secondary stage, there is a rising trend from bottom to top deciles and such a trend is steepest for the category of 'other' students. A rising trend is also evident, though the rate of increase is moderate, when all students are taken together.

Number of Free Students: No definite trend over the deciles is evident when all students are considered. Each decile shows around 65 free students which means just over 20 per cent of population. So each decile had about 10 per cent of all free students. If we consider percentage of all students who are free, the percentage, however, falls from about 90 in the bottom deciles to 50 or 60 in the top deciles, the average being about 70 or 75. Free students in the primary stage form about two-thirds of all free students, and this is more

prominent in bottom deciles as percentage of primary students (mostly free all over the state) to all students here is overwhelmingly large.

No definite trend is observed in the number of free primary students. Each decile shows around 40 such students which means about 13 per cent of population. So each decile has around 10 per cent of all such students. If we consider the percentage of all primary students who are free, the percentage remains very near 100 or even reaches 100 over the seven deciles from bottom, but thereafter shows signs of some decline reaching about 80 in the top deciles. The overall percentage is 95.

The number of free secondary students shows an increasing trend, rising from about 15 or 18 in the bottom deciles to 27 or 28 in the top deciles. Considered as percentage of population the rise is from 5 to 9 roughly, the average being 7. So the share of all free secondary students rises from 7 per cent to 12 per cent, roughly, over the ten decile groups. As regards the percentage of secondary students who are free, the overall percentage is nearly 55, but there seems to be a slight declining trend the figures are too erratic for any definite statement — from about 65 in bottom deciles to 50 near the top.

Very negligible number of free students were observed under the 'others' category, so little can be said except that since such students are rare in the lower deciles, free cases are also rare in the lower deciles.

Number of visits to outdoor departments of hospitals etc: The number of visits shows a clear decline from nearly 200 in the three lowest deciles to about 160 in the fourth decile from the bottom and then to around 60 or 80 in the six remaining deciles. There seems to be little trend over the top six deciles. So clearly richer people avoid visits to outdoor departments of hospitals etc. So per 100 persons per quarter (the reference period was last quarter i e, 90 days preceding the date of survey), the number of such visits decreases from about 64 in the three bottom decile groups to 50 in the fourth and then to 20 or 25 in the six top deciles. So far as percentage of all such visits is concerned, the three bottom deciles have a share of about 17 per cent each, the fourth of about 13 per cent and the top six of about 6 per cent.

Number of free-bed days stayed in hospitals etc.: The figures are too erratic in this case. A quarter seems to be too short a period to give reliable estimates. The numbers may be taken as fluctuating widely around an average of 57 per decile, and the figures per 100 of persons fluctuate around 19 per quarter which comes to about 75 free-bed days annually. So far as percentage share of the decile groups is concerned, very little can be said; for instance, the share is 0 for the eighth and 33 per cent in the ninth decile. Cumulative percentage shares are more stable; and they hardly show any inequality, as the bottom 50 per cent have a share of only a little over 50 per cent.

Table 3: Distribution of Free-Students by Decile Groups-Last Year

Decile Group (per cent)	Per Cent of persons	Share of consumer Expenditure (Per cent)	Percentage of Free Students				Free Students as Percentage of All Students				Free Students as Percentage of Population			
			Primary	Secondary	Others	Total	Primary	Secondary	Others	Total	Primary	Secondary	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
0-10	9.95	4.21	9.83	7.81	...	9.05	97.62	72.00	...	88.06	13.22	5.80	...	19.02
10-20	10.04	5.80	12.23	6.07	...	9.97	100.00	56.00	...	85.53	16.45	4.52	...	20.97
20-30	9.95	6.82	10.79	9.11	...	10.13	100.00	53.85	...	76.74	14.52	6.77	...	21.29
30-40	9.88	7.80	10.55	8.89	...	9.90	100.00	58.57	...	80.62	14.28	6.66	...	20.94
40-50	10.04	8.73	8.16	13.23	23.53	10.05	100.00	70.93	33.33	81.88	10.85	9.74	0.32	20.91
50-60	10.07	10.07	12.95	11.93	23.53	12.66	98.18	53.92	25.00	75.00	17.20	8.75	0.32	26.27
60-70	10.04	11.23	10.79	7.81	...	9.67	97.83	45.00	...	69.23	14.61	5.84	...	20.45
70-80	9.82	12.33	8.63	11.28	11.77	9.59	80.00	63.41	50.00	65.10	11.76	8.50	0.16	20.42
80-90	10.04	13.79	10.55	11.72	41.17	11.16	89.80	49.09	17.50	63.82	14.01	8.60	0.56	23.17
90-100	10.17	19.22	5.52	12.15	...	7.82	82.14	49.12	...	51.00	7.26	8.82	...	16.08
Total	100.00	100.00	100.00	100.00	100.00	100.00	94.99	56.08	28.33	72.42	13.38	7.39	0.13	20.90

Free-studentship is more or less equitably distributed in proportion to population, if all categories of students are considered together. The same seems to be true for primary students also. In the secondary stage, the bottom deciles send fewer free students than the top deciles, the shares rising from 7 to 12 per cent. Little can be said about the 'others' category; but the few free students generally fall in the upper deciles. On the whole, therefore, the higher deciles get a somewhat larger share of free educational services than the lower deciles.

Free primary education being available, almost all children seem to attend free primary schools, (Primary students form about 15 per cent of the population in all the ten decile groups.) This is why free-studentship in the primary stage shows an egalitarian distribution. The higher deciles have a larger share of free students of 'secondary, and 'others' categories; but the bottom deciles send relatively few secondary students and very few students of the 'others' category. As a matter of fact, number of free secondary students seem to be roughly proportional to the number of secondary students in the ten deciles. The two considerations — (i) economic condi-

tions of parents and (ii) merit of the students, — may have counterbalanced each other in the award of free studentship.

So far as free medical services are concerned, it is evident that the four bottom decile groups 'get, — it is more appropriate to say 'take' — a much larger share (above 15 per cent) than the top six decile groups (6 or 7 per cent), in the service rendered by outdoor departments of hospitals etc. This is apparently because the rich people try to avoid the trouble of attending hospital outdoors, while the poorer people are compelled to do so because of their economic condition. The distribution of services rendered by indoor departments of hospitals etc, may be more or less equitable, but the picture is not at all clear from this small scale study. It is possible that acute cases; where hospital services are essential, arise equally often among all classes of population and even the rich cannot avoid hospitals in such cases.

So far we have considered how far the distribution of these benefits is egalitarian, that is, proportional to population in the ten deciles. Perhaps it is more important to consider how far the distribution of these benefits is more egalitarian than the distribution

of domestic consumer expenditure. The distribution of domestic consumer expenditure is far from egalitarian, the bottom decile getting nearly 4.3 per cent and the top decile 19 per cent (For all-India, rural or urban, the corresponding figures show even greater inequality, *vide* Mahalanobis [2]) Judged against this background, the distribution of free health and education services seems to be favouring the poorer sections considerably. In medical services rendered by outdoor departments of hospitals, the bottom deciles get more than their due share even on the population basis. In free-studentship in the primary stage, the bottom deciles get their due share on population basis and hence more than their due share on the basis of domestic consumer expenditure. The same may be said, very roughly, about services of indoor departments of hospitals. In free-studentship in secondary and 'other' stages, the bottom deciles get less than 10 per cent share, but even here their share is larger than their share in domestic consumer expenditure. Hence, it is clear that the distribution of free health and education services in *Madhyamgram* was effectively reducing the inequality in level of living.

Table 4: Distribution of Outdoor Patient-visits and Indoor Patient-Free-Bed Days by Decile Groups—Last Quarter

Decile Groups (Per cent)	Per Cent of Persons	Share of Consumer Expenditure (Percent)	Percentage of		Per 100 of Population Per Quarter	
			Visits to Outdoor Departments of Hospitals	Days Stayed In Free Bed	Visits to Outdoor Departments of Hospitals	Days Stayed in Free Bed
(1)	(2)	(3)	(4)	(5)	(6)	(7)
0—10	9.95	4.21	16.98	4.03	64.19	7.42
10—20	10.04	5.80	17.06	10.86	63.90	19.81
20—30	9.95	6.82	16.55	19.26	62.58	35.48
30—40	9.88	7.80	13.40	2.28	50.97	4.22
40—50	10.04	8.73	6.95	16.64	24.60	30.35
50—60	10.07	10.07	4.86	5.95	18.15	10.83
60—70	10.04	11.23	6.31	3.85	23.64	7.03
70—80	9.82	12.33	5.29	...	20.26	...
80—90	10.04	13.79	5.55	33.98	20.77	61.98
90—100	10.17	19.22	7.41	3.15	27.44	5.68
Total	100.00	100.00	100.00	100.00	37.60	18.31

Note: Number of different patients: (1) visiting outdoor depts: 264, (2) staying in free bed: 26.

References

- [1] Bhattacharya N: "On the Effect of Itemization in Family Budget Schedule" (Mimeo). *Studies Relating to Planning for National Development* No 273, Indian Statistical Institute 1964.
- [2] Mahalanobis, P C: "Some Indicators for the Comparison of Level of Living over Time and Regions" *Bulletin of International Statistical Institute*, 37, 1958.
- [3] Mahalanobis, P C: "A Method of Fractile Graphical Analysis", *Econometrica*, 28, 2, 1960.

NON-RECEIPT OF COPIES

Subscribers are requested to inform us regarding non-receipt of their copies within a fortnight of the date of publication. It will not be possible to replace a missing issue, free of cost, unless timely intimation is given.

Complaints can be attended to promptly if subscribers kindly remember to mention their subscription number.