

RURAL SUPPORT PROGRAMMES NETWORK
Impact Assessment Unit-Monitoring Evaluation and Research Section

Fazal Ali Saadi, Rural Economist
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**A Comparison of Poverty Scorecard (PSC) and Quantitative Socio-Economic Survey (SES) Results
(Initial Findings)-Draft**

Introduction¹

The purpose of this paper is a comparison between data collected from a socio-economic survey conducted by RSPN in five districts of Sindh (in 2008) and the results of the Grameen Foundation's Poverty Scorecard for the same households (also conducted in 2008), for Scorecard validation purposes.

The comparison is based on findings of the socio-economic survey and Poverty Scorecard in 5 programme districts² of the Sindh Rural Support Organisation (SRSO), carried out from 16-28 September 2008. A team of the Impact Assessment Unit of the RSPN undertook these surveys as part of a an impact assessment of the SRSO programme .Efforts were made to compare the Poverty Scorecard methodology of estimating poverty and the in depth quantitative socio-economic survey which calculates income-poverty through a Head Count Ratio (HCR). The initial findings are presented here and may contribute to wider discussions concerning the two methodologies.

RSPN has collected data through both methodologies from a sample of 307 randomly selected households in the 5 districts (Jacobabad, Shikarpur, Khairpur, Sukkur and Gohtki). The sample households are further bifurcated into 3 sub-samples, which include: 174 households of CO members in treatment village, 93 households of non-CO members in treatment villages³ and 40 households from control villages.

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² The five districts are: Sukkur, Gohtki, Khairpur, Shikarpur and Jacobabad

³ Treatment villages are those villages where SRSO is working through community organisations and control villages are those villages where the SRSO is not-working.

Summery of Findings

Poverty Incidence:

In the socio-economic survey the incidence of poverty is measured through a head count ratio taking the poverty⁴ line income as Rs. 1,123 per capita per month, while the PSC uses the average of ‘poverty likelihoods’ as an incidence of poverty

- The survey findings reveal that the PSC shows a lower incidence of poverty as compared to the socio-economic survey. The reason for this may be the difference in the conceptual definition of poverty by the two methodologies. The socio-economic survey for a household tells us how poor a household is, based on the per capita per month income of the household. The PSC tells us the *probability* that a household is poor. A ‘10’ PSC score means it is very likely the household is poor, whereas a ‘90’ PSC score tells us the household is very unlikely to be poor. The Poverty Scorecard score relates to, but is not the same as, a “headcount” measure of poverty.

Table 1: Incidence of Poverty

Methodologies	Incidence of Poverty (%)
Socio Economic Survey (SES)	43
Poverty Scorecard (PSC)	33

Poverty Targeting Accuracy

- 111 households (36%) out of 307 households are identified as ‘poor’ by both methodologies. Taking a per capita income below PK Rs 1,123 for the socio-economic survey and a PSC score of less than 35;
- 109 households (36%) out of 307 households are identified as ‘non-poor’ by both the methodologies;
- 21 households (7 %) out of the 307 households are ‘poor’ according to the socio-economic survey but the PSC could not identify these households as ‘poor’. This is almost consistent with the original working of Dr. Mark Schreiner.
- 66 households (21%) are ‘non-poor’ according to the socio-economic survey and were identified as ‘poor’ according to the PSC. This is almost consistent with the original working of Dr. Mark Schreiner.

⁴ According to the PSLM (2005-06), the official Poverty Line in Pakistan is Rs.944.5. In this survey we have used Rs. 1123 per capita per month income as poverty line incomes, after adjusting for the inflation rate for 2006-7 and 2007-8. The inflation rates are taken from the Economic Survey 2007-8.

Table 2: Total Household targeting classification

Households	A	B	C	D
	Poor identified by both methodologies	Poor as identified by SES. Identified as non-poor by the PSC	Poor wrongly identified by PSC . Categorized as non-poor by SES	Non-Poor as identified by both SES and PSC
Number of Households	111	21	66	109
Percent of Total household	36	7	21	36

Note: A PSC score of less than 35 points is considered as ‘poor.’

- In the overall data 72 percent of the households are correctly identified as ‘poor’ and ‘non-poor’ i.e. a Total accuracy (proportion of households identified as ‘poor’ and ‘non-poor’ by both the methodologies);
- 84 percent of the poor are correctly identified as poor by the PSC – Poverty accuracy (proportion of the poor households identified as ‘poor’ by both the methodologies);
- 62 percent of the non-poor are correctly identified as non-poor by the PSC – Non-poverty accuracy (proportion of the non-poor households identified as ‘poor’ by both methodologies);
- 16 percent of the poor are mistakenly identified as non-poor by the PSC– Under coverage (proportion of the poor that are actually poor but could-not be identified as poor by the Poverty Scorecard, due to limitations in the Poverty Scorecard; methodology. For more details see in the section on Reasons for under-coverage);
- 37 percent of the non-poor are mistakenly identified as ‘poor’ by the PSC – Leakage (proportion of the non-poor that are actually non-poor but are identified as poor by the Poverty Scorecard, due to limitations in the Poverty Scorecard methodology)

(These percentages are within the expected range/s given by Dr. Mark Schreiner in his original Poverty Scorecard paper, based on PIHS 2000-01)

Table 3: Total net-benefit matrix

(A+D)	$100*A/(A+B)$	$100*D/(C+D)$	$100*B/(A+B)$	$100*C/(A+C)$
Total Accuracy	Poverty Accuracy	Non-poverty Accuracy	Under coverage	Leakage
72	84	62	16	37

Note: A PSC score of less than 35 points is considered as ‘poor.’

The similarities and difference between the PSC and the SES methods of poverty measurement

1. The definition of poverty in both the socio-economic survey and Scorecard is based on the official poverty line income as defined by the Government of Pakistan. For the socio-economic survey poverty line, see Economic survey of Pakistan 2007-8 and for the Poverty Scorecard poverty points and rationale see Mark Schreiner's paper " A simple Poverty Scorecard for Pakistan 2006)
2. The socio economic survey for a household tells us how poor it is based on the per capita per month income of the household. The Poverty Scorecard tells us the *probability* that a household is poor. A '10' score means it is very likely the household is poor, whereas a '90' score tells us the household is very unlikely to be poor. The Poverty Scorecard relates to, but is not the same as, a headcount measure of poverty, as measured by the socio-economic survey methodology.
3. Poverty definition in both methodologies is based on a national definition of poverty; therefore both surveys can be related to national level survey data.
4. Socio-economic surveys are expensive, complex and difficult to manage and therefore suitable for sample data and to estimate aggregate poverty or poverty incidence in a particular area. While the Poverty Scorecard is inexpensive, simple and easy to administer and, therefore, easy to scale up as a census and resultantly good for individual household poverty targeting and quick programming purposes.
5. The Poverty Scorecard instrument is a one page, simple and easy to administer questionnaire while the socio-economic survey needs a lengthy questionnaire to capture all dimensions of income and expenditure data at the household level.
6. The Poverty Scorecard is simple to use in the field while the socio economic survey is more difficult and needs much greater technical expertise.
7. The Poverty Scorecard collects information on 10 indicators and observable aspects of people's lives while the socio-economic methodology also collects observable aspects of the households but most of the data is difficult to verify and based on respondent recall.
8. The Poverty Scorecard is inexpensive and needs about 5 minutes to fill. The socio-economic methodology is expensive, time consuming and needs much greater technical expertise and prior training in filling.
9. The Poverty Scorecard produces an aggregate score and respective poverty likelihoods for households, which are expressed in percentage terms to measure poverty incidence. Similarly in the socio-economic survey, using the head count

ratio, we calculate poverty incidence and express the incidence of poverty in percentage terms.

10. Using the Poverty Scorecard one can validate the results in the community and make necessary over-writes to correctly identify the poor. This is difficult to do for socio-economic survey data.

Two Main Reasons for under-coverage⁵

- According to the data set, out of the 21 poor households (categorised as ‘poor’ by the SES), 12 households (57 percent), could not be categorised as ‘poor’ by the PSC method due to *question 1* in the PSC which carries the highest score in the poverty scorecard. Question number 1 is regarding school going age children attending school. If the household does not have any children in the given age bracket (6-17 years) then the Poverty Scorecard indicates the highest score of 23, which, in combination with a few other indicators, takes the household out of the poverty cut-off score of 35, regardless of household income and asset holding. The data in this survey reveals that these 12 households have a monthly income far below the poverty line (i.e. below Rs. 1,123 per capita per month).
- 4 households (19 percent) of the 21 households fall in the ‘poor’ category according to the socio-economic survey mainly because of *large household size*, i.e. with per capita income below the poverty line. While the Poverty Scorecard could not capture the household size factor and thus could not categorise them as poor.

Conclusion

1. Poverty is a complex phenomena and no single methodology is perfect. To determining poverty incidence a socio-economic survey is central whereas for poverty targeting, especially in case of a census, the Poverty Scorecard should be used. While administering the Poverty Scorecard some important protocols should be followed to maximise accuracy. (see point 3 below)
2. The Poverty Scorecard is an easy to use methodology and one can use it for poverty targeting on a large scale i.e. scale-up and census. A large scale socio-economic survey takes much more time, resources and accuracy.
3. The poverty scorecard has some limitations in correctly identifying poor households but this can be minimised through community validation, the gateway questions and observations during field data collection.
4. The results of the comparison between the SES and the PSC methods validates the results derived in the original work of Dr. Mark Shreiner (A simple poverty scorecard for Pakistan 2006)

⁵ Truly poor mistakenly not-targeted

References:

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Annexure

Table1: Definition of Poverty

Definition of Poverty	Poor	Non-poor
Cut-off scores (PSC)	<35	35-100
Socio-Economic Survey (Poverty Line Income)-Per capita per month income	<1123	>=1123

Table 2: Definition of Poverty Bands

Poverty bands	Extremely Poor	Chronically Poor	Transitory Poor	Transitory Vulnerable	Transitory Non-poor	Non-poor
Score cut-offs	(0 – 9)	(10 – 24)	(25 – 34)	(35 – 54)	(55 – 69)	(70 – 100)
Socio-Economic Survey (Poverty Line Income)	< 561.50	> 561.50 - 842.25	> 842.25 -1123	> 1123 - 1403.75	> 1403.75 - 2246	> 2246

Table3: Comparison of SES and PSC results for poverty targeting

Methodologies	Poor		Non-poor		Total
	Numbers	Percent	Numbers	Percent	Numbers
Socio Economic Survey (SES)	132	43	175	57	307
Poverty Scorecard (PSC)	177	58	130	42	307

Table4: Poverty Accuracy classification matrix

Poverty Scorecard	Socio-economic Survey			
	Poor		Non-poor	
	Numbers	Percent	Numbers	Percent
Poor	111	36	66	21
Non-poor	21	7	109	36

Table 5: Comparison of SES results and PSC results by poverty bands

Methodologies		Extremely Poor	Chronically Poor	Transitory Poor	Transitory Vulnerable	Transitory Non-poor	Non-Poor	Grand Total
Socio Economic Survey (SES)	Number	16	30	86	29	89	57	307
	Percent	5	10	28	9	29	19	100
Poverty Scorecard (PSC)	Number	11	84	82	102	21	7	307
	Percent	4	27	27	33	7	2	100

Table 6: Poverty Bands Accuracy classification Matrices (numbers)

Poverty bands PSC	Poverty bands SES						Grand Total
	Extremely Poor	Chronically Poor	Transitory Poor	Transitory Vulnerable	Transitory Non-poor	Non-Poor	
Extremely Poor	3	2	5	1	0	0	11
Chronically Poor	7	17	39	4	14	3	84
Transitory Poor	3	8	27	5	29	10	82
Transitory Vulnerable	3	3	14	16	36	30	102
Transitory Non-poor	0	0	1	3	9	8	21
Non-Poor	0	0	0	0	1	6	7
Grand Total	16	30	86	29	89	57	307

Table 7: Poverty Bands Accuracy classifications Matrices (Percent)

Count of Poverty bands PSC	Poverty bands SES						Grand Total
	Extremely Poor	Chronically Poor	Transitory Poor	Transitory Vulnerable	Transitory Non-poor	Non-Poor	
Extremely Poor	19	7	6	3	0	0	4
Chronically Poor	44	57	45	14	16	5	27
Transitory Poor	19	27	31	17	33	18	27
Transitory Vulnerable	19	10	16	55	40	53	33
Transitory Non-poor	0	0	1	10	10	14	7
Non-Poor	0	0	0	0	1	11	2
Grand Total	100	100	100	100	100	100	100

Table 8: Score Cut-offs by number of poor and non-poor

Score (Cut-Offs)	Non-poor	Poor	Grand Total
0-4	1	2	3
5-9	0	8	8
10-14	6	11	17
15-19	6	25	31
20-24	9	27	36
25-29	17	15	32
30-34	27	23	50
35-39	30	11	41
40-44	23	7	30
45-49	15	2	17
50-54	14	0	14
55-59	10	1	11
60-64	8	0	8
65-69	2	0	2
70-74	4	0	4
80-84	1	0	1
85-89	2	0	2
Grand Total	175	132	307

Table 9: Scores and poverty likelihoods using SES data

Score (Cut-Offs)	Poverty likelihoods for people with score in range (%)	% of households <=score who are poor	% of households >score who are non-poor
0-4	66.7	66.7	57.0
5-9	100.0	90.9	57.2
10-14	64.7	75.0	58.8
15-19	80.6	78.0	60.2
20-24	75.0	76.8	65.3
25-29	46.9	69.3	72.2
30-34	46.0	62.7	75.6
35-39	26.8	56.0	83.8
40-44	23.3	52.0	88.8
45-49	11.8	49.4	94.9
50-54	0.0	47.0	97.6
55-59	9.1	45.5	96.4
60-64	0.0	44.3	100.0
65-69	0.0	44.0	100.0
70-74	0.0	43.4	100.0
80-84	0.0	43.3	100.0
85-89	0.0	43.0	100.0

Table 10: Households by targeting classification and Scores using SES data

Score (Cut-Offs)	A	B	C	D
	Truly poor correctly targeted	Truly poor mistakenly non-targeted	Truly non-poor mistakenly targeted	Truly non-poor correctly non-targeted
0-4	0.7	42.3	0.3	56.7
5-9	3.3	39.7	0.3	56.7
10-14	6.8	36.2	2.3	54.7
15-19	15.0	28.0	4.2	52.8
20-24	23.8	19.2	7.2	49.8
25-29	28.7	14.3	12.7	44.3
30-34	36.2	6.8	21.5	35.5
35-39	39.7	3.3	31.3	25.7
40-44	42.0	1.0	38.8	18.2
45-49	42.7	0.3	43.6	13.4
50-54	42.7	0.3	48.2	8.8
55-59	43.0	0.0	51.5	5.5
60-64	43.0	0.0	54.1	2.9
65-69	43.0	0.0	54.7	2.3
70-74	43.0	0.0	56.0	1.0
80-84	43.0	0.0	56.4	0.7
85-89	43.0	0.0	57.0	0.0

Table 11: Total net benefit for some common net-benefit matrices using SES data

Score (Cut-Offs)	(A+D)	$100*A/(A+B)$	$100*D/(C+D)$	$100*B/(A+B)$	$100*C/(A+C)$
	Total Accuracy	Poverty Accuracy	Non-poverty Accuracy	Under coverage	Leakage
0-4	57.3	1.5	99.4	98.5	33.3
5-9	59.9	7.6	99.4	92.4	9.1
10-14	61.6	15.9	96.0	84.1	25.0
15-19	67.8	34.8	92.6	65.2	22.0
20-24	73.6	55.3	87.4	44.7	23.2
25-29	73.0	66.7	77.7	33.3	30.7
30-34	71.7	84.1	62.3	15.9	37.3
35-39	65.5	92.4	45.1	7.6	44.0
40-44	60.3	97.7	32.0	2.3	48.0
45-49	56.0	99.2	23.4	0.8	50.6
50-54	51.5	99.2	15.4	0.8	53.0
55-59	48.5	100.0	9.7	0.0	54.5
60-64	45.9	100.0	5.1	0.0	55.7
65-69	45.3	100.0	4.0	0.0	56.0
70-74	44.0	100.0	1.7	0.0	56.6
80-84	43.6	100.0	1.1	0.0	56.7
85-89	43.0	100.0	0.0	0.0	57.0

Table 12: Correlation of PSC score and per capita monthly income

	PSC	PCP Inc
PSC	1	
PCP Inc	0.4618	1