



Measurement Issues of Income and Non-Income Welfare Indicators: Assessment of Pakistan's Pro-Poor Growth

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ABSTRACT

The major contribution of this study is to access number of income and non-income welfare indicators i.e., human development indicators (comprises primary school enrollment, secondary school enrollment, education expenditures, literacy rate, life expectancy, population per bed doctors, maternal and child health center, health expenditures, population planning, social security welfare and natural calamities); rural development measures (includes irrigation, land reclamation, rural development and rural electrification); safety net measures (contains food subsidy, food support programme, Tawwana Pakistan and low cost housing); and market access and community services measures (i.e., roads, buildings and highways and water supply and sanitation) for pro-poor growth reforms in Pakistan. The study covers the four most promising household income surveys of Pakistan i.e., 2002, 2006, 2008 and 2011. This study uses growth incidence curve (GIC) and non-income GIC for measuring income and non-income indicators for Pakistan. The results more pronounced towards relative pro-poor growth in most of the non-income indicators, however, few non-income indicators favors absolute income of the poor in Pakistan.

Keywords: Poverty, Growth, Inequality, Pro-Poor Growth, Non-Income Growth Incidence Curve, Pakistan

JEL Classifications: I32, O47

1. INTRODUCTION

According to World Bank (2012) report, South Asia covers world's fifth largest population in their continent that having a massive populated geographic region of the world. The South Asian Association for Regional Cooperation is one of the major economic cooperation bloc consists of Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. Since last two decades, South Asia shows a promising economic growth on average of 6% per year. This strong economic growth trickle down to the lower income strata group that provides employment opportunities in the region that help to facilitate in the reduction of poverty in many South Asian countries, however, increasing poverty still be the challenge in some nations and Pakistan is no exception one of the exemplified country of the region.

There seems to be a flurry of studies that have provided mutually inconsistent estimates of levels and trends in poverty in Pakistan. These estimates differ due to chosen different yardstick to measures calories level of poverty. Malik (1988); Amjad and Kemal (1997); and FBS (2001) uses 2550 calories level of poverty,

while World Bank (2009) uses international poverty rate of US \$1.25 per day level of poverty. Pakistan Economic Survey (various issues) estimated official poverty line of 2350 calories level of poverty for the following reasons i.e., national poverty lines are used to make more accurate estimates of poverty consistent with the country's specific economic and social circumstances, and are not intended for international comparisons of poverty rates. National poverty lines tend to increase in purchasing power with the average level of income in a country. To be useful for poverty estimates, surveys should be nationally representative. They also include enough information to compute a comprehensive estimate of total household consumption or income (including consumption or income from own production) and to construct a correctly weighted distribution of consumption or income per person (UNCTAD 2012). For these reasons, this study brings the poverty data as per official poverty line, 2350 calories level of poverty for estimation.

Pro-poor growth is not new phenomena for policy makers, as the traces of pro-poor growth in the decade 2000s is more pronounced from earlier phase of economic development. Ravallion and Chen

(2003) proposed the growth incidence curve (GIC) and absolute pro-poor growth measures across the countries, while the relative pro-poor growth definition emerged in the studies of McCulloch and Baulch (2000); Kakwani and Pernia (2000); Kakwani and Son (2002); and Son (2004). Growth incidence analysis is one of the emerging debates to measuring the set of welfare-indicators (e.g. human development indicators - health and education) at each percentile of the distribution of that indicator (Anderson, 2009). Klasen (2008) has taken the case study of Bolivia for evaluating number of non-income indicators from two household nationwide surveys i.e., 1989 and 1998. The results show that changes in income distribution have a considerable impact on non-income indicators. Günther and Klasen (2007) examined the non-income poverty in the context of Vietnam by using the household data from 1992 to 1997. The results show that there is low correlation between income and non-income poverty in each time period, however, they are moving each other over time. Coromaldi and Zoliderive (2012) examined different deprivation indicators in Italy and found that deprivation analysis considerably improve poverty evaluation nationwide. Mallick (2013) evaluated the different economic variables that impact on poverty in India's agriculture and non-agriculture sector. The results show that sectoral growth exerted the positive impact on decreasing the poverty level; in addition, there is substantial decrease in rural poverty by increasing the non-agricultural per capita income. Grosse et al. (2008) had taken number of non-income indicators and well being indicators and evaluated both the growth incidence and non-income growth incidence for Bolivia, over the period of 1989-1998. The results confirmed the considerable increase in both the income and non-income dimensions of poverty nationwide. Bourguignon (2011) evaluated non-anonymous GICs that change with the income distribution across the globe by comparing two time period i.e., from 1995-2002 period to 2002-2007. The results conclude that rational income distribution lead to the social reforms that trickle down to the poor.

The above discussion confirms the strong correlation among social expenditures, economic growth and poverty reduction. The objective of the study is to evaluate income and non-income welfare indicators by using GIC and unconditional non-income GIC (NIGIC) under the four major development measures i.e., human development measures, rural development, safety nets and market access and community services for Pakistan. In the subsequent section, an action has been made to empirically estimate absolute pro-poor and relative pro-poor welfare indicators for Pakistan by using four household income surveys of Pakistan i.e., 2002, 2006, 2008 and 2011.

The study is divided in to the following sections: After introduction, which is presented in Section 1 above, Section 2, shows the data source and methodological framework. Results are discussed in Section 3. Final section concludes the study.

2. DATA SOURCE AND METHODOLOGICAL FRAMEWORK

The study used four Household Integrated Economic Surveys (HIES) and Pakistan Integrated Household Surveys (PIHS)

covered the period of 2002, 2006, 2008 and 2011 respectively. The study evaluated different developmental measures including human development measures, rural development, safety nets and market access and community services for Pakistan. In addition, the study used headcount ratio for poverty and Gini coefficient for income inequality measures. The data is taken from Pakistan Economic Survey (various issues), HIES (various issues) and PIHS (various issues). Table 1 shows the list of variables.

The distribution of sample i.e., primary sample units and secondary sample units in urban and rural areas of Pakistan are given in the Tables 2-5 respectively.

3. RESULTS

Table 6 shows descriptive statistics for the poverty and income inequality indicators by percentiles in Pakistan during two surveys i.e., 2002-2006 and 2008-2011. The results show that comparatively, poverty i.e., headcount ratio increases up to 10 percentile point from 17.3% to 21.8% point during the survey of 2002-2011. However, percentile 25% to 99%, headcount ratio significantly decreases from 49.8% in 2002-2006 to 21.98% in 2008-2011. This result indicates the performance of federal government towards pro-growth and pro-poor policies in Pakistan, which is healthy sign towards poverty reduction. Overall, mean of headcount ratio for 2002-2006 is 32.6%, while on average, 21.8% headcount ratio is in 2008-2011. Around 10.8 percentage point, poverty decreases in between two study surveys. Ratio of highest to lowest percentile indicates that this gap significantly reduces from 2.87% in 2002-2006 to 1.0% in the survey of 2008-2011. On the other way around, poverty gap significantly decreases up to 75 percentile, while increases faster in the subsequent percentiles. The mean of poverty gap between two surveys indicate that poverty gap significantly increases from 5.15% in 2002-2006 to 5.34% in 2008-2011. However, the highest to lowest percentile shows significant decrease poverty gap from 2.31% in 2002-2006 to 1.37% in 2008-2011. Same results has appeared in case of squared poverty gap where 75 percentile point size of poverty gap increases while in the subsequent percentile it would go down. Mean of squared poverty gap indicates significant increase vulnerability of poor's in between two surveys periods. There is only little recovery has been find when highest to lowest percentile ratio decreases from 2.18% in 2002-2006 to 1.09% in 2008-2011. One reason here that poverty gap and squared poverty gap not much increases in lowest percentiles, therefore, poor benefited more than non-poor in between two surveys. Income inequality in terms of Gini coefficient indicates that income inequality rises faster in between these two surveys, as indicated, income inequality rises 37.47% in 2002-2006 to 42.81% in 2008-2011. The ratio of highest to lowest percentile is about 1.27-1.01 in between these two surveys, which shows slight decrease in distributional income towards non-poor to the poor's in Pakistan.

Table 7 shows statistics for the income and non-income indicators by percentiles in Pakistan, where the percentiles are sorted according to the relevant indicators (i.e., human development indicators, rural development, safety net and market access and community services measures); these

Table 1: Lists of variables

Variables	Measurement	Data source
Headcount ratio	Percentage of people live below the poverty line	HIES and PIHS surveys (various issues)
Inequality	Gini index of 0% represents perfect equality, while a Gini index of 100 implies perfect inequality	Pakistan Economic Survey (various issues)
Primary school enrolment	000 ³ numbers	Pakistan Economic Survey (various issues)
Secondary school enrolment	000 ³ numbers	Pakistan Economic Survey (various issues)
Education expenditures	Percentage of GDP	Pakistan Economic Survey (various issues)
Literacy rate	In percentage	Pakistan Economic Survey (various issues)
Life expectancy	Total years	Pakistan Economic Survey (various issues)
Population per bed-doctor	Numbers	Pakistan Economic Survey (various issues)
Maternal and Child Health Centre	Numbers	Pakistan Economic Survey (various issues)
Health expenditure	Percentage of GDP	Pakistan Economic Survey (various issues)
Population planning	Rupees in Billion	Pakistan Economic Survey (various issues)
Social security and welfare	Rupees in Billion	Pakistan Economic Survey (various issues)
Natural calamities	Rupees in Billion	Pakistan Economic Survey (various issues)
Irrigation	Rupees in Billion	Pakistan Economic Survey (various issues)
Land reclamation	Rupees in Billion	Pakistan Economic Survey (various issues)
Rural development	Rupees in Billion	Pakistan Economic Survey (various issues)
Rural electrification	Rupees in Billion	Pakistan Economic Survey (various issues)
Food subsidies	Rupees in Billion	Pakistan Economic Survey (various issues)
Food support program	Rupees in Billion	Pakistan Economic Survey (various issues)
Tawwana Pakistan	Rupees in Billion	Pakistan Economic Survey (various issues)
Low cost housing	Rupees in Billion	Pakistan Economic Survey (various issues)
Roads, highways and buildings	Rupees in Billion	Pakistan Economic Survey (various issues)
Water supply and sanitation	Rupees in Billion	Pakistan Economic Survey (various issues)

Source: Pakistan Economic Survey (various issues), HIES (various issues) and PIHS (various issues), PIHS: Pakistan Integrated Household Surveys, HIES: Household Integrated Economic Surveys

Table 2: Sample size HIES, 2001-02

Sample size	Province	Punjab	Sind	NWFP	Baluchistan	Total
Number of sample PSUs	Total	436	264	188	140	1028
	Rural	230	136	116	88	570
	Urban	206	128	72	52	458
Number of sample SSUs	Total	6100	3708	2699	2029	14536
	Rural	3668	2174	1842	1406	9090
	Urban	2432	1534	857	623	5446

Source: Pakistan Economic Survey (various issues), HIES (various issues) and PIHS (various issues), PIHS: Pakistan Integrated Household Surveys, HIES: Household Integrated Economic Surveys, NWFP: North-West Frontier Province, PSUs: Primary sampling units, SSUs: Secondary sample units, GDP: Gross domestic product

Table 3: Sample size HIES, 2005-06

Sample size	Province	Punjab	Sind	NWFP	Baluchistan	Total
Number. of sample PSUs	Total	436	264	188	140	1028
	Rural	230	136	116	88	570
	Urban	206	128	72	52	458
Number. of sample SSUs	Total	6100	3708	2699	2029	14536
	Rural	3668	2174	1842	1406	9090
	Urban	2432	1534	857	623	5446

Source: HIES (2006), HIES: Household Integrated Economic Surveys, PSUs: Primary sample units, SSUs: Secondary sample units, NWFP: North-West Frontier Province

Table 4: Sample size HIES, 2007-08

Sample size	Province	Punjab	Sind	NWFP	Baluchistan	Total
Number. of Sample PSUs	Total	484	271	206	152	1131
	Rural	244	131	118	88	581
	Urban	240	140	88	64	532
Number. of Sample SSUs	Total	6636	3765	2937	2174	15512
	Rural	3668	2093	1888	1408	9257
	Urban	2768	1672	1094	766	6255

Source: HIES (2008) HIES: Household Integrated Economic Surveys, PSUs: Primary sample units, SSUs: Secondary sample units, NWFP: North-West Frontier Province

background information for the unconditional GICs. The results show some worth noting i.e. first, the disparity in the incomes is larger than in most non-income indicators,

particularly in the survey years 2008-2011. Human development measures in terms of education, health and others measures improved during the survey years between 2002-2006 and

Table 5: Sample size HIES, 2010-11

Sample size	Province	Punjab	Sind	KPK	Baluchistan	Total
Number. of Sample PSUs	Total	512	296	208	164	1180
	Rural	256	144	120	96	616
	Urban	256	152	88	68	564
Number. of Sample SSUs	Total	6954	4098	2954	2335	16341
	Rural	4019	2296	1913	1524	9752
	Urban	2935	1802	1041	811	6589

Source: HIES (2011) HIES: Household Integrated Economic Surveys, PSUs: Primary sample units, SSUs: Secondary sample units, KPK: Khyber Pakhtunkhwa Province

Table 6: Poverty and income inequality by percentile for Pakistan 2002-2006 and 2008-2011

Percentiles	Poverty indicators	
	2002-2006	2008-2011
P0 (headcount ratio)		
1	17.3	21.8
5	17.3	21.8
10	18.6	21.8
25	22.1	21.8
50	25	21.85
75	44.5	21.9
90	49.1	21.9
95	49.8	21.9
99	49.8	21.9
Mean	32.6	21.8
99: 1	2.87	1
P1 (poverty gap)		
1	3.15	4.5
5	3.15	4.5
10	3.25	4.5
25	4.25	4.5
50	5	5.3
75	6.1	6.2
90	6.9	6.2
95	7.3	6.2
99	7.3	6.2
Mean	5.15	5.34
99: 1	2.31	1.37
P2 (squared poverty gap)		
1	1.02	1.85
5	1.02	1.85
10	1.02	1.85
25	1.2	1.85
50	1.5	1.935
75	2	2.02
90	2.2	2.02
95	2.23	2.02
99	2.23	2.02
Mean	1.6	1.93
99: 1	2.18	1.09
Income inequality		
1	33	42.5
5	33	42.5
10	33.6	42.5
25	34.6	42.5
50	37.1	42.9
75	40.7	43.1
90	41.3	43.1
95	42	43.1
99	42	43.1
Mean	37.47	42.81
99: 1	1.27	1.01

rural development indicators, safety net measures and market accesses and community services measures during the survey years from 2002-2006 to 2008-2011. In terms of highest to lowest percentiles, i.e., 99% to 1%, there is gradual decrease in all indicators except rural electrification; Tawwana Pakistan; and water supply and sanitation. The overall results indicate that in all income and non-income indicators, there has been an improvement in all percentiles during 2002-2011. In education, health indicators (except population per bed doctors and health expenditures), rural development measures, safety net measures and market access and community services measures, the improvements are particularly noticeable at the lower end, suggesting that improvements were percolating down to these groups (Klasen, 2008), a considerable achievement for Pakistan.

In addition, Table 7 shows the GIC for human development measures, rural development, safety net and market access and community services. The results reveal that human development measures adopted by Federal Government of Pakistan more towards relative pro-poor growth, which indicates the income distributional shifts associated with the economic growth that favors the poors as compared to non-poors in Pakistan. In case of education; primary school enrolment, education expenditures and literacy rate shows relative pro-poor growth while growth is considered as absolute pro-poor growth in secondary school education that achieve the greatest amount of poverty reduction possible through secondary school education and progressive distributional change. Human development measures in terms of healthcare shows the relative pro-poor growth as life expectancy, population per bed doctors; maternal and child health centre and health expenditures favor public sector interventions that reduce inequality regardless of their impact on growth. Some other human development measures i.e. population planning and social security welfare more pronounced absolute pro-poor growth while natural calamities are relative pro-poor growth. Figures 1-6 in appendix shows the NIGIC for human development measures for ready reference.

Rural development measures include land reclamation, rural development and rural electrification shows relative pro-poor growth scenario while irrigation favors the poors in absolute terms. Safety net measures shows relative pro-poor growth, which implies that growth in safety nets, benefits the poors as compared to the non-poors in Pakistan. Finally, there is a mix result in market access and community services, where roads, highways and buildings reforms give benefit to the poors in absolute terms while water supply and sanitation more pronounced with relative pro-poor growth.

2008-2011 except, population per bed-doctors and health expenditures, which significantly decreases from 2002-2006 to 2008-2011 survey years. There is a significant increase in

Table 7: Non-income achievements by non-income percentile and GIC for Pakistan 2002-2006 and 2008-2011

Percentiles	2002-2006	2008-2011	NIGIC	Decision
Human development measures-education				
PSE (in 000' numbers)				
1	3160	17228	3.452	Absolute pro-poor growth
5	3160	17228	3.452	Absolute pro-poor growth
10	3380	17228	3.097	Absolute pro-poor growth
25	3960	17228	2.351	Absolute pro-poor growth
50	7639	17753	0.324	Absolute pro-poor growth
75	13088	18278	-0.603	Relative pro-poor growth
90	16834	18278	-0.914	Relative pro-poor growth
95	17258	18278	-0.941	Relative pro-poor growth
99	17258	18278	-0.941	Relative pro-poor growth
Mean	9526.33	17753	-0.136	Relative pro-poor growth
99:1	5.46	1.06		
SSE (in 000' numbers)				
1	750	7535	8.047	Absolute pro-poor growth
5	750	7535	8.047	Absolute pro-poor growth
10	790	7535	7.538	Absolute pro-poor growth
25	1040	7535	5.245	Absolute pro-poor growth
50	2356	7894	1.351	Absolute pro-poor growth
75	4123	8253	0.002	Relative pro-poor growth
90	5871	8253	-0.594	Relative pro-poor growth
95	7219	8253	-0.857	Relative pro-poor growth
99	7219	8253	-0.857	Relative pro-poor growth
Mean	3346.44	7753	0.316	Absolute pro-poor growth
99:1	9.62	1.09		
EEXP (in percentage of GDP)				
1	1.837	2.625	-0.571	Relative pro-poor growth
5	1.837	2.625	-0.571	Relative pro-poor growth
10	2.008	2.625	-0.693	Relative pro-poor growth
25	2.034	2.625	-0.709	Relative pro-poor growth
50	2.065	2.775	-0.656	Relative pro-poor growth
75	2.21	2.925	-0.676	Relative pro-poor growth
90	2.3435	2.925	-0.752	Relative pro-poor growth
95	2.626	2.925	-0.886	Relative pro-poor growth
99	2.626	2.925	-0.886	Relative pro-poor growth
Mean	2.17	2.77	-0.723	Relative pro-poor growth
99:1	1.42	1.11		
LIT (in percentage)				
1	23	55.2	0.400	Absolute pro-poor growth
5	23	55.2	0.400	Absolute pro-poor growth
10	23.2	55.2	0.379	Absolute pro-poor growth
25	27	55.2	0.044	Absolute pro-poor growth
50	39.15	56.2	-0.564	Relative pro-poor growth
75	42.6	57.2	-0.657	Relative pro-poor growth
90	49.6	57.2	-0.847	Relative pro-poor growth
95	54.1	57.2	-0.943	Relative pro-poor growth
99	54.1	57.2	-0.943	Relative pro-poor growth
Mean	37.3	56.2	-0.493	Relative pro-poor growth
99:1	2.35	1.03		
Human development measures - Health				
LE (total years)				
1	49.33	64.72	-0.688	Relative pro-poor growth
5	49.33	64.72	-0.688	Relative pro-poor growth
10	51.3	64.72	-0.738	Relative pro-poor growth
25	53.8	64.72	-0.797	Relative pro-poor growth
50	59.86	64.955	-0.915	Relative pro-poor growth
75	62.51	65.19	-0.957	Relative pro-poor growth
90	64.1	65.19	-0.983	Relative pro-poor growth
95	64.26	65.19	-0.986	Relative pro-poor growth
99	64.26	65.19	-0.986	Relative pro-poor growth
Mean	57.63	64.95	-0.872	Relative pro-poor growth
99:1	1.3	1		
PPB (in numbers)				
1	1254	1182	-1.057	Relative pro-poor growth
5	1254	1182	-1.057	Relative pro-poor growth

Contd...

Table 7: (Continued)

Percentiles	2002-2006	2008-2011	NIGIC	Decision
10	1274	1182	-1.072	Relative pro-poor growth
25	1763	1182	-1.330	Relative pro-poor growth
50	2865	1197	-1.582	Relative pro-poor growth
75%	14343	1212	-1.915	Relative pro-poor growth
90	21170	1212	-1.943	Relative pro-poor growth
95	37970	1212	-1.968	Relative pro-poor growth
99	37970	1212	-1.968	Relative pro-poor growth
Mean	13318.1	1197	-1.910	Relative pro-poor growth
99:1	30.27	1.02		
MCHC (in numbers)				
1	524	904	-1.080	Relative pro-poor growth
5	524	904	-1.080	Relative pro-poor growth
10	650	904	-1.080	Relative pro-poor growth
25	678	904	-1.098	Relative pro-poor growth
50	849	905	-1.178	Relative pro-poor growth
75	906	906	-1.211	Relative pro-poor growth
90	998	906	-1.294	Relative pro-poor growth
95	1054	906	-1.294	Relative pro-poor growth
99	1054	906	-1.294	Relative pro-poor growth
Mean	804.1	905	-0.804	Relative pro-poor growth
99:1	2.01	1		
HEXP (percentage of GDP)				
1	2.73	2.512	-0.218	Relative pro-poor growth
5	2.73	2.512	-0.218	Relative pro-poor growth
10	2.73	2.512	-0.218	Relative pro-poor growth
25	2.784	2.512	-0.272	Relative pro-poor growth
50	3.1265	2.57	-0.556	Relative pro-poor growth
75	3.332	2.628	-0.704	Relative pro-poor growth
90	3.721	2.628	-1.093	Relative pro-poor growth
95	3.721	2.628	-1.093	Relative pro-poor growth
99	3.721	2.628	-1.093	Relative pro-poor growth
Mean	3.177	2.57	-1.191	Relative pro-poor growth
99:1	1.36	1.04		
Human development measures - Others				
PPLAN (rupees in billion)				
1	1.3	13.3	8.231	Absolute pro-poor growth
5	1.3	13.3	8.231	Absolute pro-poor growth
10	1.3	13.3	8.231	Absolute pro-poor growth
25	1.3	13.3	8.231	Absolute pro-poor growth
50	4.6	14.75	1.207	Absolute pro-poor growth
75	10.2	16.2	-0.412	Relative pro-poor growth
90	10.2	16.2	-0.412	Relative pro-poor growth
95	10.2	16.2	-0.412	Relative pro-poor growth
99	10.2	16.2	-0.412	Relative pro-poor growth
Mean	5.62	14.75	0.624	Absolute pro-poor growth
99:1	7.84	1.21		
SSW (rupees in billion)				
1	2	9.8	2.900	Absolute pro-poor growth
5	2	9.8	2.900	Absolute pro-poor growth
10	2	9.8	2.900	Absolute pro-poor growth
25	2	9.8	2.900	Absolute pro-poor growth
50	3.7	10	0.703	Absolute pro-poor growth
75	7.6	10.2	-0.658	Relative pro-poor growth
90	7.6	10.2	-0.658	Relative pro-poor growth
95	7.6	10.2	-0.658	Relative pro-poor growth
99	7.6	10.2	-0.658	Relative pro-poor growth
Mean	4.67	10	0.141	Absolute pro-poor growth
99:1	3.8	1.04		
NC				
1	0.2	6.2	29.000	Absolute pro-poor growth
5	0.2	6.2	29.000	Absolute pro-poor growth
10	0.2	6.2	29.000	Absolute pro-poor growth
25	0.2	6.2	29.000	Absolute pro-poor growth
50	0.9	6.65	5.389	Absolute pro-poor growth
75	19.2	7.1	-1.630	Relative pro-poor growth

Contd...

Table 7: (Continued)

Percentiles	2002-2006	2008-2011	NIGIC	Decision
90	19.2	7.1	-1.630	Relative pro-poor growth
95	19.2	7.1	-1.630	Relative pro-poor growth
99	19.2	7.1	-1.630	Relative pro-poor growth
Mean	8.72	6.65	-1.237	Relative pro-poor growth
99:1	96	1.14		
Rural development measures				
IRRI				
1	10.1	74.8	5.406	Absolute pro-poor growth
5	10.1	74.8	5.406	Absolute pro-poor growth
10	10.1	74.8	5.406	Absolute pro-poor growth
25	10.1	74.8	5.406	Absolute pro-poor growth
50	37.9	77.5	0.045	Absolute pro-poor growth
75	59.8	80.2	-0.659	Relative pro-poor growth
90	59.8	80.2	-0.659	Relative pro-poor growth
95	59.8	80.2	-0.659	Relative pro-poor growth
99	59.8	80.2	-0.659	Relative pro-poor growth
Mean	35.27	77.5	0.197	Absolute pro-poor growth
99:1	5.92	1.07		
LR				
1	1.8	3.5	-0.056	Relative pro-poor growth
5	1.8	3.5	-0.056	Relative pro-poor growth
10	1.8	3.5	-0.056	Relative pro-poor growth
25	1.8	3.5	-0.056	Relative pro-poor growth
50	2.1	3.75	-0.214	Relative pro-poor growth
75	2.7	4	-0.519	Relative pro-poor growth
90	2.7	4	-0.519	Relative pro-poor growth
95	2.7	4	-0.519	Relative pro-poor growth
9	2.7	4	-0.519	Relative pro-poor growth
Mean	2.23	3.75	-0.318	Relative pro-poor growth
99:1	1.5	1.14		
RD				
1	12.3	19.5	-0.415	Relative pro-poor growth
5	12.3	19.5	-0.415	Relative pro-poor growth
10	12.3	19.5	-0.415	Relative pro-poor growth
25	12.3	19.5	-0.415	Relative pro-poor growth
50	15	19.85	-0.677	Relative pro-poor growth
75	15.4	20.2	-0.688	Relative pro-poor growth
90	15.4	20.2	-0.688	Relative pro-poor growth
95	15.4	20.2	-0.688	Relative pro-poor growth
Mean	13.8	19.86	-0.561	Relative pro-poor growth
99:1	1.25	1.03		
RE				
1	1	1.3	-0.700	Relative pro-poor growth
5	1	1.3	-0.700	Relative pro-poor growth
10	1	1.3	-0.700	Relative pro-poor growth
25	1	1.3	-0.700	Relative pro-poor growth
50	1.2	1.65	-0.625	Relative pro-poor Growth
75	1.4	2	-0.571	Relative pro-poor growth
90	1.4	2	-0.571	Relative pro-poor growth
95	1.4	2	-0.571	Relative pro-poor growth
99	1.4	2	-0.571	Relative pro-poor growth
Mean	1.2	1.65	-0.625	Relative pro-poor growth
99:1	1.4	1.53		
Safety net measures				
FS				
1	5.4	7.8	-0.556	Relative pro-poor growth
5	5.4	7.8	-0.556	Relative pro-poor growth
10	5.4	7.8	-0.556	Relative pro-poor growth
25	5.4	7.8	-0.556	Relative pro-poor growth
50	5.5	8.15	-0.518	Relative pro-poor growth
75	6	8.5	-0.583	Relative pro-poor growth
90	6	8.5	-0.583	Relative pro-poor growth
95	6	8.5	-0.583	Relative pro-poor growth
99	6	8.5	-0.583	Relative pro-poor growth
Mean	5.67	8.15	-0.562	Relative pro-poor growth

Contd...

Table 7: (Continued)

Percentiles	2002-2006	2008-2011	NIGIC	Decision
99:1	1.11	1.08		
FSP				
1	2	4	0.000	Relative pro-poor growth
5	2	4	0.000	Relative pro-poor growth
10	2	4	0.000	Relative pro-poor growth
25	2	4	0.000	Relative pro-poor growth
50	2.7	4.4	-0.370	Relative pro-poor growth
75	3.1	4.8	-0.452	Relative pro-poor growth
90	3.1	4.8	-0.452	Relative pro-poor growth
95	3.1	4.8	-0.452	Relative pro-poor growth
99	3.1	4.8	-0.452	Relative pro-poor growth
Mean	2.56	4.4	-0.281	Relative pro-poor growth
99:1	1.55	1.2		
TP				
1	0.6	0.1	-1.8333	Relative pro-poor growth
5	0.6	0.1	-1.8333	Relative pro-poor growth
10	0.6	0.1	-1.8333	Relative pro-poor growth
25	0.6	0.1	-1.8333	Relative pro-poor growth
50	0.7	0.15	-1.7857	Relative pro-poor growth
75	0.8	0.2	-1.7500	Relative pro-poor growth
90	0.8	0.2	-1.7500	Relative pro-poor growth
95	0.8	0.2	-1.7500	Relative pro-poor growth
99	0.8	0.2	-1.7500	Relative pro-poor growth
Mean	0.7	0.15	-1.785	Relative pro-poor growth
99:1	1.33	2		
LCH				
1	0.1	0.4	2.000	Absolute pro-poor growth
5	0.1	0.4	2.000	Absolute pro-poor growth
10	0.1	0.4	2.000	Absolute pro-poor growth
25	0.1	0.4	2.000	Absolute pro-poor growth
50	0.3	0.405	-0.650	Relative pro-poor growth
75	0.32	0.41	-0.719	Relative pro-poor growth
90	0.32	0.41	-0.719	Relative pro-poor growth
95	0.32	0.41	-0.719	Relative pro-poor growth
99	0.32	0.41	-0.719	Relative pro-poor growth
Mean	0.22	0.4	-0.181	Relative pro-poor growth
99:1	3.2	1.02		
Market access and community services measures				
RHB				
1	6.3	69.1	8.968	Absolute pro-poor growth
5	6.3	69.1	8.968	Absolute pro-poor growth
10	6.3	69.1	8.968	Absolute pro-poor growth
25	6.3	69.1	8.968	Absolute pro-poor growth
50	35.2	71.15	0.021	Absolute pro-poor growth
75	53.3	73.2	-0.627	Relative pro-poor growth
90	53.3	73.2	-0.627	Relative pro-poor growth
95	53.3	73.2	-0.627	Relative pro-poor growth
99	53.3	73.2	-0.627	Relative pro-poor growth
Mean	30.4	71.15	0.340	Absolute pro-poor growth
99:1	8.46	1.05		
WSS				
1	4.6	13.4	0.913	Absolute pro-poor growth
5	4.6	13.4	0.913	Absolute pro-poor growth
10	4.6	13.4	0.913	Absolute pro-poor growth
25	4.6	13.4	0.913	Absolute pro-poor growth
50	6.5	14.6	0.246	Absolute pro-poor growth
75	10.3	15.8	-0.466	Relative pro-poor growth
90	10.3	15.8	-0.466	Relative pro-poor growth
95	10.3	15.8	-0.466	Relative pro-poor growth
99	10.3	15.8	-0.466	Relative pro-poor growth
Mean	7.34	14.6	-0.019	Relative pro-poor growth
99:1	2.23	1.17		

GIC: Growth incidence curve, GDP: Gross domestic product, PSE: Primary school enrolment, SSE: Secondary school enrolment, EEXP: Education Expenditures, LIT: Literacy rate, LE: Life expectancy, PPB: Population per bed-doctors, MCHC: Maternal and Child Health Centre, HEXP: Health expenditures, PPLAN: Population planning, SSW: Social security and welfare, NC: Natural calamities, IRR: Irrigation, LR: Land reclamation, RD: Rural development, RE: Rural electrification, FS: Food subsidies, FSP: Food Support Program, TP: Tawwana Pakistan, LCH: Low cost housing, RHB: Roads, highways and buildings, WSS: Water supply and sanitation

Figure 1: Non-income growth incidence curve for human development measures - Educational indicators

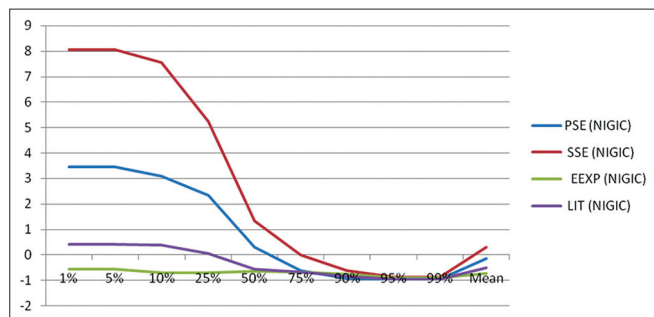


Figure 2: Non-income growth incidence curve for human development measures - Health indicators

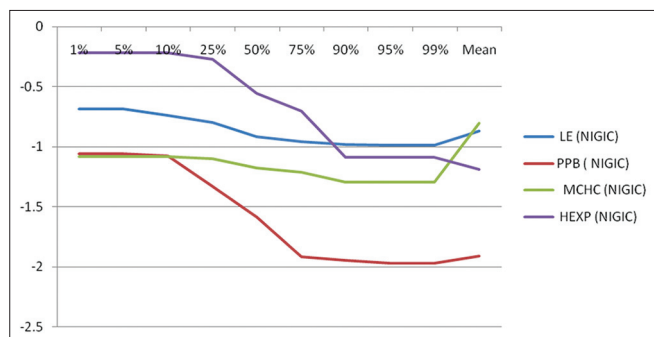


Figure 3: Non-income growth incidence curve for human development measures - Other indicators

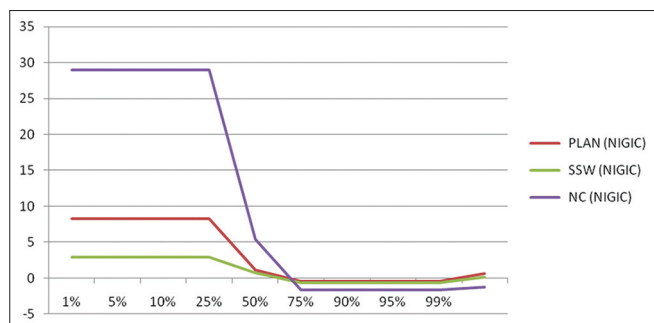


Figure 4: Non-income growth incidence curve for rural development indicators

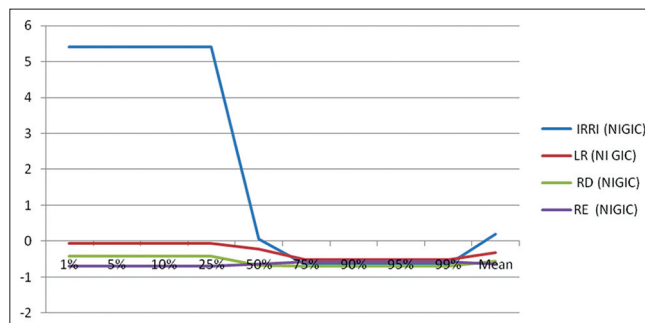


Figure 5: Non-income growth incidence curve for safety net measures

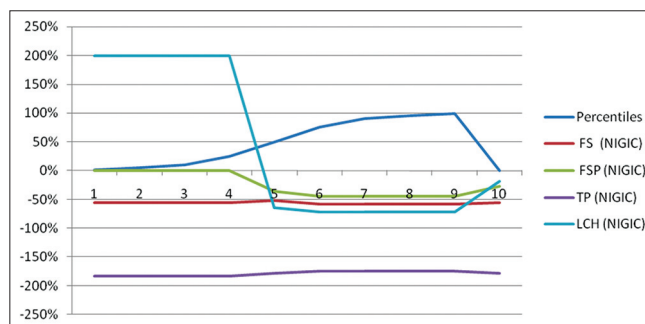
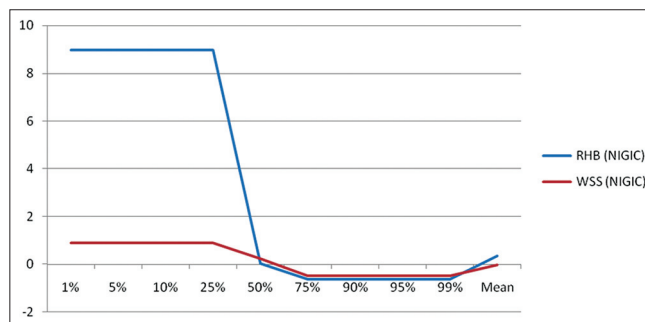


Figure 6: Non-income growth incidence curve for market access and community services measures



4. CONCLUSION

This study contributes in the literature of pro-poor growth toolbox to non-income indicators for Pakistan. From the household surveys for Pakistan in 2002, 2006, 2008 and 2011, it was possible to construct 21 non-income welfare indicators, in the dimensions of human development, rural development, safety nets and market access and community services. The results show that out of 11 human development indicators, 8 indicators show relative pro-poor growth while remaining in the favor of absolute poor in Pakistan. Similarly, Out of four rural development indicators, irrigation of land favors the absolute poor while land reclamation, rural development and rural electrification exhibits relative pro-poor growth. Safety net measures which comprises food subsidy programme, food support programme, Tawwana Pakistan and low cost housing all shows relative pro-poor scenario in Pakistan. At last, market access and community services measures partially show the relative pro-poor

growth in water supply and sanitation programme. The results conclude some significant and important differences across income and non-income welfare indicators, both in terms of aggregate trends and distributional patterns. The results suggest that economic growth is not an only viable solution to reduce non-income deprivation. There is considerable need to plan target oriented approach where the human development measures trickle down to the poor as compared to the non-poor. The policy makers should have to emphasize on the NIGIC measures for policy action.

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