Declining Poverty in India: A Decomposition Analysis[*]

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Abstract

In an attempt to delineate the sources of change in the incidence of poverty in India and to assess their relative contribution in reducing (or raising) the poverty incidence in the eighties and nineties this paper employs two decomposition exercises. The first one expresses the percentage change in the poverty index between two time points into growth effect, inequality effect and the population shift effect while the second one measures it in terms of changes in per capita income (GDP), sectoral composition of value added, labour productivity and employment in organized manufacturing relative to the poor who are largely engaged in low productivity activities. The growth effect which dominates over the inequality and population shift effects caused poverty to decline both in the eighties and nineties. A rise in the beneficial effect of growth both in the rural and urban areas and a fall in the adverse inequality and population shift effects in the urban areas in the nineties compared to the eighties, are noteworthy. The change in the composition of growth (the shift in value added mix towards industry and tertiary activities) seems to have caused a larger decline in the incidence of poverty in the nineties than the eighties. Labour productivity growth and employment growth in the organized industry are also important for poverty reduction. Economic reforms seem to have a positive effect on the levels of living though a great deal needs to be done to reduce inequality in the process of growth and make the latter pro-poor.

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That the benefits of economic growth diffuse across all segments of society is the essence of the trickle down theory, which influenced economic thinking in the fifties and sixties. One view which significantly influenced policy decisions in this direction is that the poor benefit from economic growth only indirectly and, therefore, the proportional benefits of growth going to them compared to the rich are always less (see Kakwani, Prakash and Son, 2000).   Economic growth brings in either an increase or a decrease in inequality; hence, if inequality increases with economic growth, the benefits accruing to the poor would be less than those to the non-poor. On the other hand, if growth is accompanied by a decline in inequality, benefits received by the poor would be more than those by the non-poor, and under this particular situation growth is said to be pro-poor. Kakwani and Pernia (2000) define pro-poor growth as one that enables the poor to actively participate in economic activity and benefit from it significantly. If economic growth brings in a sharp increase in inequality it is possible that the incidence of poverty rises over time because the beneficial effects of growth get offset by the adverse effects of rising inequality, which means that the inequality effect may dominate over the growth effect. Bhagwati (1988) has described this phenomenon as "immiserizing" growth. Hence, it is important to assess the impact of growth and inequality separately on poverty, which has

been attempted in a large number of studies in the past in terms of decomposition exercise (Kakwani, 2000; Jain and Tendulkar, 1990).

In the process of economic development, as Kuznets (1966) highlighted, there takes place a shift away from agriculture towards manufacturing and services both in terms of value added and work force structure, and this also involves a location shift of population from rural to urban areas. Since labour productivity is higher in the modern industry - largely located in the urban areas – rather than in the rural-based agricultural sector, per-capita income also tends to be higher in the urban areas. As a result inequality between the sectors increases at the initial stage though it may decline later. An important implication of this view is that if inequality increases with growth, growth alone may not be adequate to reduce poverty, or it may completely bypass the poor. As regards the population shift from rural to urban areas it is suggestive of the tendency that the rise in urbanization resulting from migration, may lead to a rise in inequality and hence a rise in poverty at the initial stage though at higher stages of development, urbanization and poverty would be inversely related.

Also, the over-urbanization thesis (Hoselitz, 1957) in explaining the association between industry and urbanization held that in developing countries the sluggish growth and/or limited spread of the industry in the urban areas results in limited absorption of labour in high productivity activities, which in turn leads to a residual absorption of labour in low productivity activities in the so called 'urban informal sector'. And this explains a high incidence of urban poverty in the face of a rapid flow of population from rural to urban areas being prompted by the rural-urban expected income differentials as Harris and

Todaro (1970) argued. However, a large number of empirical studies exist to suggest that migrants have been able to escape poverty even when they could not graduate to the formal sector (Banerjee, 1986; Mitra, 1994 and Papola, 1981). Hence, though rising urbanization may be accompanied by higher incidence of urban poverty, overall poverty may decline due to a population shift from rural to urban areas. These views, therefore, motivate one to analyse the effects of economic growth, inequality and population shift on the overall incidence of poverty of a country.

Following the economic reforms in India since 1991, growth has been accompanied by a reduction in poverty on a scale, which on an average is seen to be larger than the corresponding decline in the eighties (Sundaram and Tendulkar, 2003). This has possibly resulted from growth accompanied by a reduction in inequality in the urban areas, though this has occurred in a few rapidly growing states only. Sachs, Bajpai and Ramiah (2002) observe that the economic growth across states in the nineties shows a tendency of divergence rather than convergence, implying that states with a higher per capita income have grown faster than the states with lower per capita income. Further, it has been noted that states with higher levels of urbanization have grown faster, meaning that external economies of scale or agglomeration economies originating from concentration of population and activities in the rich states with a strong base in infrastructure have resulted in productivity growth. Hence, the poor in these states, at least in the urban areas, might have benefited more than their counterparts in other states. This is indicative of a reduction in inequality in these states accompanied by growth. In other words, growth seems to have become pro-poor in the urban areas during the post-reform period. It would be interesting to examine whether at the all-India level such patterns are

discernible, that is, whether the adverse effect of inequality on poverty fell and the beneficial effect of growth on poverty rose in the post-reform period compared to its previous period.

It is not only the overall growth but also the composition of growth, which is important for poverty reduction. If the poor are mostly concentrated in the agricultural sector it is natural that agriculture led growth would reduce poverty. However, as Kuznets (1966) pointed out, in the process of economic development both value added mix and work force structure shift away from agriculture. Hence recommending an agriculture-led growth may be counter-intuitive. One may, therefore, suggest that the growth of the industrial sector or that of the overall commodity-producing sector plays an important role in reducing poverty. However, it may be noted that several tertiary activities also plays a key role in generating economic growth. It has been observed that the entire tertiary sector is not parasitic in nature (Bhattacharya and Mitra, 1997); a large segment, particularly in the context of liberalization, is strongly associated with the commodity-producing sector. Activities, which were earlier conducted within the manufacturing sector for example, are being undertaken separately because of greater specialization, and hence these may form a part of the tertiary sector. This would, therefore, call for a careful interpretation of the tertiary sector rather than treating it purely as redundant. In other words, tertiarization of value added may also play a role in poverty reduction as it can generate employment and simultaneously enhance real income. In other words, in the context of poverty reduction, the changing composition of growth does not imply only a rise in the share of industry - rather industry and tertiary sectors both – accompanying the declining share of agriculture (see Ravallion and Datt, 1996).

From the over-urbanization thesis, it follows that if the organized industry can absorb on a large scale the semi-skilled and unskilled labour released from the agriculture sector, poverty would decline. Hence it is not merely industrialization in terms of value added rather it is the poor vis-à-vis the employment generated in the organized manufacturing, which is crucial for reducing poverty. Similarly, a rise in industrial productivity translating into a rise in the income of the workers would have implications in terms of a decline in poverty (Mitra, 1992). On the whole, both the industrialization of value added and of the work force resulting in a rise in productivity – the former being faster than the latter – would help to reduce poverty.

In order to examine some of these hypotheses, we have conducted two decomposition exercises. The first exercise, following Kakwani (2000) and Mazumdar and Son (2002), decomposes the change in incidence of poverty into growth effect, inequality effect and population shift effect. The second exercise expresses poverty in terms of per-capita income, share of industry in gross domestic product, manufacturing labour productivity and the ratio of poor to manufacturing employment. The details about these exercises are discussed in section II. The empirical results are interpreted in section IV. Section V summerises the major findings of the study. The data for this study are drawn mainly from NSS Quinqunniem surveys on consumption expenditure.[1] Further details about other variables and data transformations are given in Section III.

I. Some broad indicators

The incidence of poverty in rural India declined from 45.61 per cent in 1983 to 37.27 per cent in 1993-94 (see Table 1). Between 1993-94 and 1999-2000 it declined by 10.18

[1] There are alternative measures of poverty figures estimated by independent researchers. But since these are different from each other, we have considered the poverty figures based on Planning Commission's Modified Expert Group Methodology.

percentage point, which is larger than the extent of fall in the previous period. This trend is similar even in urban India. The decline in poverty has been accompanied by an increase in the average per-capita consumption expenditure, which rose by 18.3 and 11.3 per cent (in constant prices) over 1983 through 1993-94 and 1993-94 through 1999-2000 respectively. Per-capita GDP also increased by 27.8 and 26.9 per cent over the same periods. This has been accompanied by an increase in the level of urbanisation (defined as the ratio of urban population to total population). Workforce participation rate, which is defined as the principle plus subsidiary status worker as a percentage of total population, remained more or less the same in the rural areas in the first sub-period, whereas it declined by almost 2.7 percentage point in the second sub-period. On the other hand, in the urban areas, it increased marginally by 0.7 percentage point in first sub-period and fell subsequently by almost one percentage point in the second period.

Table 1: Trend in poverty and other variables

variables	1983			1993-94			1999-2000		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Poverty(%)	45.61	42.15	44.48	37.27	33.66	35.97	27.09	23.62	26.1
APCE (Rs.)	240	381	273.5	281.4	458	328.3	309	515.4	367.6
TWFPR	44.5	34.0	42	44.4	34.7	41.8	41.7	33.7	39.4
GDPPC(Rs)			6619			8740			11438
Urbanisation			23.79			26.57			28.4

Note: TWFPR=Total workforce participation rate (principle+subsidiary status); GDPPC=Per-capita Gross domestic product (factor cost, 1993-94 prices); Urbanisation=Urban population/total population; APCE=Average per-capita consumption expenditure (1993-94 prices).

It appears that the decline in the incidence of poverty, particularly in the nineties, has been accompanied by a fall in the workforce participation rate and a rise in per-capita income and the per-capita consumption expenditure. Can all this be viewed as the contribution of economic reforms, which led to higher growth in the nineties; or to the

change in the composition of growth and/or change in inequality in the process of growth? It would, therefore, be interesting to examine the contribution of different factors in reducing poverty over the eighties and nineties.

II. Methodology

The issue of decomposing the change in poverty index into growth and distribution effect was initiated by Kakwani and Subbarao (1990) and Jain & Tendulkar (1990). After this, quite a few alternative decomposition methods have been developed (Datt and Ravallion (1992); Kakwani (2000) and Mazumdar and Son (2002)). In this section, we offer a synthesis of these methods.

Let the change in poverty between two periods 'j' and 'k' be 'ÄP$_{jk}$' and the incidence of poverty be,

$$P = P(Z, m, L(t)),$$ ……(1)

where 'P' is the poverty ratio, 'Z' is the poverty line, 'ì' mean income (or expenditure), and 'L(t)' is the Lorenz ratio.

And the change in poverty can be defined as

$$\Delta P_{jk} = Q(M_{jk}, I_{jk})$$ ……(2)

where 'M$_{jk}$' and 'I$_{jk}$' denote a change in poverty due to the mean and inequality effect, respectively. Kakwani and Subbarao (1990) estimated 'M$_{jk}$' by taking the change in mean and keeping the Lorenz curve of the 'jth' period constant. 'I$_{jk}$' has been estimated by taking the change in the Lorenz curve and keeping the mean of the 'jth' period constant. But this decomposition was not an exact one and contains the residual term. Datt and Ravallion (1992) have defined this residual term as,

$$\mathbf{e}_{jk} = -M_{kj} - M_{jk} \qquad\qquad\qquad \text{.......(3)}$$

But this decomposition is not symmetric as it is sensitive to the reference period.

Another method suggested by Jain and Tendulkar (1990) states that the change in poverty

can be decomposed as,

$$\Delta P_{jk} = M_{jk} + I_{jk}^{*} \quad \text{and} \quad \Delta P_{jk} = M_{jk}^{*} + I_{jk}$$

where,

$$M_{jk}^{*} = P(Z, \mathbf{m}_{k}, L_{k}(t)) - P(Z, \mathbf{m}_{j}, L_{k}(t)) \quad \text{and}$$

$$I_{jk}^{*} = P(Z, \mathbf{m}_{k}, L_{k}(t)) - P(Z, \mathbf{m}_{k}, L_{j}(t))$$

Though this procedure is an exact one, this was criticized on the ground that the mean

effect and the inequality effect have been estimated by using different reference period.

Kakwani (2000) tries to propose a method that takes care of the weaknesses that are

found in the previous ones. It defines the mean and inequality effect as

$$M_{jk}^{*} = \frac{1}{2}[P(Z, \mathbf{m}_{k}, L_{j}(t)) - P(Z, \mathbf{m}_{j}, L_{j}(t)) + P(Z, \mathbf{m}_{k}, L_{k}(t)) - P(Z, \mathbf{m}_{j}, L_{k}(t))] \text{ ...(4)}$$

and

$$I_{jk}^{*} = \frac{1}{2}[P(Z, \mathbf{m}_{j}, L_{k}(t)) - P(Z, \mathbf{m}_{j}, L_{j}(t)) + P(Z, \mathbf{m}_{k}, L_{k}(t)) - P(Z, \mathbf{m}_{k}, L_{j}(t))] \text{ ....(5)}$$

and hence the decomposition would be written as

$$\Delta P_{jk} = M_{jk}^{*} + I_{jk}^{*} \qquad\qquad\qquad \text{.......(6)}$$

In addition to the growth and inequality effect, Mazumdar and Son (2002) included the

population shift effect in the decomposition exercise.

Assume that there are two demographic groups as i=1 and 2. Then the change in poverty can be expressed as,

$$\frac{\Delta P}{P} = \sum_i \frac{\bar{f}_i P_i}{P} \frac{M_i}{P_i} + \sum_i \frac{\bar{f}_i P_i}{P} \frac{I_i}{P_i} + \sum_i \frac{\overline{P_i} f_i}{P} \frac{\Delta f_i}{f_i} \qquad \ldots\ldots(7)$$

where f_k and P_k are population share and poverty index of the kth group respectively.

And $\bar{f}_i = \frac{f_{ij} + f_{ik}}{2}$, $\overline{P_i} = \frac{P_{ij} + P_{ik}}{2}$

It may be noted that 'M' and 'I' are mean and inequality effect respectively, similar to that of 'M^*' and 'I^*' of Kakwani (2000) and this is an exact decomposition of the change in percentage of poverty. Here f_i and P_i are population share and poverty index of the ith group respectively, while $\bar{f}_i$ and $\overline{P_i}$ are the ith group averages of the respective values at two time points. 'P' is the head count ratio of poverty for all areas (rural and urban combined). ΔP is the change in poverty between two time points. The third term on the right hand side represents the change in poverty due to population shift. Δf_i is the change in population share between two time points of the ith group. In our present analysis 'i' stands for rural and urban areas. In the present study we estimate equation (7) to decompose the change in poverty in terms of growth/mean effect, inequality effect and the effect due to population shift say from rural to urban areas in India between the two periods 1983 to 1993-94 and 1993-94 to 1999-2000.

Further to understand the linkage between poverty, per-capita income and sectoral value added we have also estimated three variants of multiplicative decompositions of poverty ratio in a particular period. They are as follows:

$$P = \left(\frac{GDP}{Population}\right)\left(\frac{Mfg.valueadded}{GDP}*100\right)\left(\frac{Poor}{Mfg.valueadded}\right); \qquad\qquad .....(8)$$

$$P = \left(\frac{GDP}{Population}\right)\left(\frac{Agriculture + Industry}{GDP}*100\right)\left(\frac{Poor}{Agriculture + Industry}\right); \qquad .....(9)$$

$$P = \left(\frac{GDP}{Population}\right)\left(\frac{Mfg.valueadded}{GDP}*100\right)\left(\frac{Poor}{Mfg.employment}\right)\left(\frac{Mfg.employment}{Mfg.valueadded}\right) \qquad ...(10)$$

Here 'P' is the poverty ratio. In the first variant the headcount measure of poverty is expressed as per capita income, industrialization is measured as the share of organized manufacturing value added in the total GDP and the ratio of poor to organized manufacturing value added, indicating the poor that the organized industry has got to support. In the second variant of the model, poverty is expressed in terms of per capita income, the share of commodity sector (agriculture and secondary, i.e., manufacturing, construction, electricity, gas and water, etc.) in total gross domestic product and the poor dependency ratio relative to the total commodity sector value added. In the third variant, poverty is decomposed into per capita income, industrialization defined as the percentage share of organized manufacturing value added in total GDP, the ratio of poor relative to employment in the organized manufacturing and the inverse of labour productivity in the organized manufacturing.

Taking the logarithm transformation of both the sides, each variant can be reduced to an additive form. Hence, the inter-temporal difference in each of these expressions gives the rate of growth of change in the headcount measure of poverty being expressed in terms of the rate of growth of each component listed on the right hand side. The data that we have used for this study is explained in the next section.

III. Database

In this study we try to decompose the changes in poverty between two periods, i.e., 1983 to 1993-94 and 1993-94 to 1999-2000, and between two regions, i.e., rural and urban, by using two methods that are specified in the previous section. For this purpose we have taken the distribution of consumer expenditure data for all India from the 38th, 50th and 55th rounds of Consumer Expenditure surveys conducted by National Sample Survey Organisation for the years 1983, 1993-94 and 1999-00 respectively. For the purpose of comparison, we have also adjusted the base year expenditures with the prices of terminal year. The price indices used are the same as those used by the Modified Expert Group to update the poverty line (National Human Development Report, 2001). It is noted that the distribution of expenditure class intervals in each round is different. We have reclassified the base year expenditure class intervals in terms of terminal year class interval. In doing so, we assume that the number of persons and the per-capita expenditure within the class interval is proportionately related. We have projected the population for 1983, 1994 and 2000 based on the population census data. For the second method, we have taken GDP (at factor cost, in 1993-94 prices), agricultural and secondary sector value added data from *Economic Survey 2002-03*. The data on value added and workers employed in the organized manufacturing sector are taken from the *Annual Survey of Industries* for the requisite years and the value added figures have been converted into 1993-94 prices. For employment in the manufacturing sector we have taken the total number of workers instead of the total persons engaged, as the latter includes highly skilled jobs, which may not be available to the unskilled and semi-skilled job seekers. Hence, in assessing the relative burden of the poor in terms of the number of poor vis-à-vis employment in the

high productivity organized manufacturing sector, only the number of workers is considered to be appropriate.

IV. Discussion of results

As mentioned above, following the methodology of Mazumdar and Son (2002) the change in poverty has been decomposed into the growth effect, inequality effect and the effect due to population shift from rural to urban areas. The growth/mean effect, determines the extent of fall (rise) in poverty incidence due to rise (fall) in mean per capita consumption expenditure. The inequality effect estimates the rise (fall) in poverty due to rise (fall) in inequality. The population shift effect assesses the net impact on all-areas combined poverty, of a decline (rise) in rural (urban) poverty caused primarily by rural-urban migration. This exercise has been carried out for both pre- and post-reform periods broadly classified as 1983 to 1993-94 and 1993-94 to 1999-2000. The decomposition has been done for rural and urban India separately and also for the whole of India.

From Table 2 it may be noted that between 1983 and 1993-94 the growth effect was –14.28 and –5.66 per cent for rural and urban areas respectively. It seems that in the process of growth, inequality had been accentuated because the inequality effect was positive in sign (0.19 and 0.89 per cent for rural and urban areas respectively), implying that inequality raised poverty. However, the growth effect has been much larger than the inequality effect in terms of absolute magnitude and, hence this helped the poverty decline during this period. As regards the population shift effect, rural to urban migration obviously reduced the poverty in the rural areas (-2.59 per cent). Though in the urban areas it led to an increase in the incidence of poverty (by 2.28 per cent), the net effect

judged in terms of the change in overall poverty (rural-urban combined) is seen to beneficial as it dropped by 0.3 per cent. In other words, rural to urban migration helped reduce poverty by enabling the rural migrant poor to participate in urban-based activities, which could generate comparatively higher incomes than that in the rural areas. At the all-India level (rural and urban combined) the growth effect (-19.54 percent) dominated over the inequality effect (1.07 per cent) though the latter is seen to have a tendency of increasing the poverty. In other words, the adverse effects of rise in inequality have been less than the beneficial effects of growth, which resulted in a decline in poverty by 19.17 per cent.

Table 2: Decomposition of change in poverty between 1983 and 1993-94

Region	Inequality	Growth	Population	Total
Rural	0.19	-14.28	-2.59	-16.68
Urban	0.89	-5.66	2.28	-2.49
Total	1.07	-19.94	-0.3	-19.17

Table 3: Decomposition of change in poverty between 1993-94 and 1999-2000

Region	Inequality	Growth	Population	Total
Rural	1.59	-22.12	-1.64	-22.17
Urban	0.04	-6.72	1.43	-5.25
Total	1.63	-28.83	-0.21	-27.42

It is quite evident from Table 3 that in the second period, i.e., 1993-94 to 1999-2000, the growth effect continued to be beneficial as far as the poverty reduction in the rural areas is concerned, and the magnitude increased to a considerably higher level (-22.12 per cent). However, the inequality effect rose from 0.19 per cent in the first period to 1.59 per cent in the second period. Though growth accentuated inequality in the 90s, the inequality effect has been dominated by the growth effect and, hence, poverty declined to a larger extent than the corresponding fall in the previous period. Interestingly, in the

urban areas, the inequality effect became almost zero (0.04) per cent in the second period which was nearly one (0.89) percent in the first period. Growth possibly reduced inequality by helping the poor access the benefits of growth in the reform era. The growth effect on poverty also went up in magnitude from –5.66 to –6.72 per cent over the same period and thus reduced the incidence of urban poverty. The phenomenon of no adverse inequality effect in urban India in the post reform period is noteworthy. However, urban economy being only one-fourth of the total, the inequality effect for the whole of India still turned out to be adverse (1.63 percent) in the nineties, indicating increasing effect on poverty. But since the growth effect (-28.83 percent) dominated over the inequality effect, it could more than offset the adverse effects of inequality and, thus, reduced the poverty (-27.42 per cent). As regards the population shift effect, rural to urban migration seems to have reduced poverty in the rural areas (by 1.64 percent), but raised the incidence of urban poverty (by 1.43 percent). However, the net effect of population shift on poverty has been beneficial (-0.21 per cent) suggesting that rural-urban migration helped the overall poverty to decline. But it may be noted that the population shift effect on poverty declined in magnitude in the second period (-0.21) compared to the first (-0.3), which is suggestive of a possible decline in net population shift from rural to urban areas in the nineties compared to the eighties.

Results from the second decomposition exercise, for which three variants have been taken, are presented in Tables 4 and 5 for eighties and nineties respectively. From the first variant of the model, it is evident that the ratio of poor to organized manufacturing value added fell sharply by 69.4 per cent between 1983 and 1993-94. The other two components namely, per-capita income and industrialization index, increased by 28 and

19 per cent, respectively. The net effect of all these changes is seen to have reduced poverty. Hence, it is the expansion of the organized manufacturing in terms of value added, which has resulted in an overall decline in poverty by 22 per cent in the first period.

In the second period, while the expansion of manufacturing value added continues to reduce poverty, as evident from the change in the ratio of poor to manufacturing value added, the declining share of industry in total GDP has also contributed to a decline in poverty. As the share of agriculture has already been declining over the years, this would mean a rise in the share of tertiary sector value added. The expansion of the tertiary sector has possibly generated more employment opportunities for the poor and, hence contributed in terms of reduction in poverty.

In the second variant of the model this particular phenomenon is made more distinct. While in the first period both the share of commodity sector value added and the ratio of poor to commodity sector value added resulted in a decline in the incidence of poverty, in the second period it is primarily the decline in the percentage share of commodity sector value added, which contributed to reduction in poverty, thus indicating the tertiary sector growth being pro-poor.

Table 4: Decomposition of change in poverty between 1983 and 1993-94

Variables	Model1	Model2	Model3
ÄPOV%	-0.22	-0.22	-0.22
ÄGDPPC	0.28	0.28	0.28
ÄIND%	0.19		0.19
ÄCOMM%		-0.097	
Ä(POOR/COM)		-0.398	
Ä(POOR/MEM)			-0.06
Ä(MEM/MVA)			-0.626
Ä(POOR/MVA)	-0.694		

Table 5: Decomposition of change in poverty between 1993-94 and 1999-2000

Variables	Model1	Model2	Model3
ÄPOV%	-0.32	-0.32	-0.32
ÄGDPPC	0.264	0.265	0.265
ÄIND%	-0.172		-0.172
ÄCOMM%		-0.65	
Ä(POOR/COMM)		0.06	
Ä(POOR/MEM)			-0.15
Ä(MEM/MVA)			-0.26
Ä(POOR/MVA)	-0.413		

Where POV% = Poverty ratio; GDPPC= Per-capita GDP; IND% = Share of manufacturing output in total GDP (in percentage); COMM%=Agricultural and allied activities value added + Secondary sector value added (in percentage); POOR= Total number of people below poverty line; MEM=Total number of workers in manufacturing sector; MVA= Gross value added by the manufacturing sector; 'Ä' represents change between two periods.

In the third variant of the model, where the rate of growth of poverty is expressed in terms of the growth rate of per-capita GDP, growth rate of industrialization, the rate of growth of inverse of manufacturing labour productivity and the rate of growth of the ratio of poor to manufacturing employment, the last two factors primarily caused the decline in poverty in the first period. However, the fall in the ratio of poor to manufacturing employment was only 6 per cent in the eighties. On the other, in the second period, the contribution of this factor to the reduction in poverty went up to 15 per cent. Since the denominator, i.e., employment in the organized manufacturing, actually fell in absolute terms in the second period, it is the decline in the absolute number of poor, which resulted in the fall in the ratio of poor to manufacturing employment. If manufacturing employment would also have increased during 1993-94 – 1999-00, the ratio of poor to

manufacturing workers could have caused a much larger decline in the incidence of poverty. The rise in manufacturing labour productivity seems to have contributed to a fall in poverty to a larger extent in the second period as compared to the first period. In addition, the expansion of the tertiary sector in the second period also seems to have brought down the incidence of poverty. On the whole, the structural shift in value added towards industry and tertiary sector (or in other words the change in the composition of growth), labour productivity and employment growth in the organized industry are crucial to poverty reduction.

V. Conclusion

The observed decline in the incidence of poverty in the nineties has been greater than that during the eighties. Whether it has been caused by pro-poor economic growth is an important question in the context of economic reforms. The decomposition exercise carried out for the eighties and nineties in terms of growth effect, inequality effect and population shift effect brings out some interesting results. Economic growth seems to be accompanied by an adverse inequality effect except in the urban areas in the second period. This means that the growth effect and inequality effect have mostly operated in the opposite direction. However, the growth effect dominated over the inequality effect, and this caused poverty to decline. In the nineties, growth tended to be pro-poor in the urban areas as the adverse inequality effect on poverty became almost zero and the growth effect on poverty increased in magnitude compared to the eighties, in both rural and urban areas. The availability of infrastructure including information and technology and improved access to health and literacy has possibly contributed to a rise in access to productive employment, and thus reduced the adverse inequality effect in the urban areas.

The net effect of population movement from rural to urban areas also shows a fall in the incidence of poverty (rural and urban areas combined) though when specific to urban areas it has a tendency to raise the incidence of poverty.

Change in the composition of growth, that is, the shift in value added mix towards industry and tertiary activities, seems to have caused a larger decline in the incidence of poverty in the nineties compared to the eighties. Some of the tertiary activities, which have shown a growth spur in the post-reform period, hold possibilities of generating employment opportunities and thus reducing poverty. Labour productivity growth and employment growth in the organized industry are also crucial to poverty reduction. The faster growth of industry with improved technology would mean that the unskilled and semi-skilled work force released from the low productivity activities can be increasingly absorbed within the high productivity industry, and with rising productivity, the gains can be transferred to workers too, which would obviously help reduce poverty sharply in the coming years.

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