Economic Growth, Poverty and Reforms in Indian States

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Abstract

In this paper an attempt is made to assess the impact of economic reforms on the incidence of poverty by decomposing the change in poverty ratio between two time points into growth/mean effect, inequality effect and the population shift effect. Based on the National Sample Survey data an analysis has been carried out for two time periods: (i) 1983 to 1993-94 and (ii) 1993-94 to 1999-2000, broadly representing the pre- and post-reforms, respectively, for the rural and urban areas of the fifteen major states, and also for the all-India level. The growth/mean effect, which determines the extent of fall (rise) in poverty incidence due to rise (fall) in mean per capita consumption expenditure, dominates in both the periods over the inequality effect, that estimates the rise (fall) in poverty due to rise (fall) in inequality. It also dominates over the population shift effect, which assesses the net impact on all-areas combined poverty, of a decline (rise) in rural (urban) poverty caused primarily by rural-urban migration. The growth effect, which is beneficial for poverty reduction, seems to have gone up in the post reform period. The adverse inequality effect also fell in magnitude in the second period compared to the first. States with a greater beneficial growth effect in the second period relative to the first, also show a fall in the magnitude of an adverse population shift effect in the urban areas, i.e., a relatively less rise in the incidence of urban poverty caused by rural-urban migration. States where economic reforms were initiated performed better than the rest in terms of the effects mentioned above. Though reforms might have impacted factors representing agglomeration economies of scale, which in turn possibly led to divergence across states in terms of economic growth (per capita SDP), convergence seems to have taken place in terms of the growth/mean effect on poverty in the post-reform period compared to the eighties. This may have resulted from good governance in rapidly growing and reforming states and its demonstration effect elsewhere.

Key Words: Reform, Growth Effect, Inequality Effect, Population Shift Effect

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* An earlier version of this was presented in a National Seminar on "Indian Economy under the New Policy Regime" held at Sri Satya Sai Institute of Higher Learning, Puttaparti and also at the Institute of Economic Growth, Delhi. The authors would like to thank the seminar participants for their comments and suggestions. The authors are also grateful to Dr Jean Dreze for his insightful comments. Thanks are due to Ms Pooja Goel for her able research assistance.

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The pro-market economic reforms are expected to simultaneously accelerate economic growth and at the same time help the economy recover from foreign exchange crisis and fiscal imbalances. This is obviously not expected to effect different sections of the population uniformly. One view is that the poor may benefit from economic growth only indirectly and, hence, the proportional benefits of growth going to the poor could be always less than those accruing to the non-poor. In other words, the positive effects of growth on poor tend to get offset by the adverse effects of rising inequality, emerging in the process of economic growth. However, if economic growth is accompanied by a decline in inequality, the poor benefit more than the non-poor – the situation is described in the literature as pro-poor growth (see Kakwani, Prakash and Son, 2000; Kakwani and Pernia, 2000). Even when inequality rises, observed poverty may still decline if the growth effect predominates over the inequality effect, that is, the extent of fall in poverty due to growth is larger than the rise in poverty due to a rise in inequality.

In the Indian context with wide regional variations in terms of socio-economic development, economic reforms have been initiated at different levels across states. Most of the economic reforms have been pursued in the industrial sector, the spread and growth of which show considerable regional variations. Availability of infrastructure, which is a strong determinant of industrial productivity and competitiveness on the one hand and occupation, mobility and earnings of the population on the other, also varies significantly across states (Mitra,1997). As an outcome of this it is expected that economic growth would have wide regional variation,

and further the changing income distribution in the process of growth would also be different across states. Hence, it would be interesting to delineate the effects of growth and inequality separately on poverty in different states. And this could be done for the pre- and post-reform periods so as to identify the changes that can be attributed strongly to economic reforms.

Population mobility across space is an outcome of economic growth too. The spatial composition of growth reflected in terms of a rural-urban development disparity motivates people to shift to areas with better employment prospects. As total poverty is a weighted average of rural and urban specific poverty ratios, the net effect of population mobility on poverty depends on the changes in its rural and urban components. Since economic reforms are more urban based, the spatial composition of growth is expected to change, resulting in a migration of population from rural to urban areas. The decline in the incidence of poverty (rural-urban combined) depends on whether urban employment opportunities are large enough to absorb the increasing supplies of labour from the rural areas.

Keeping in view these outcomes in the process of economic growth, this paper makes an attempt to decompose the change in poverty over two time points in terms of pure growth effect (holding inequality constant), inequality effect (holding growth constant) and population shift effect. Such an analysis enables a critical analysis of the policy issues and offers a profound understanding of the reform process. However, it may be noted that in doing such an exercise only the expenditure inequality has been considered which is a gross underestimate of income/asset inequality. Similarly the growth effect is envisaged in terms of mean effect - the mean of consumption expenditure per capita -which is again a gross under-estimate of per capita income. As data on income and its distribution is not available, these crude proxies are followed and are based on the National Sample Survey data on expenditure per capita and its size distribution. In assessing the population shift effect the percentages of population residing

in urban and rural areas are considered, which in addition to rural-urban migration includes also the differentials in rural-urban natural growth of population, and the rise (fall) in the level of urbanization (percentage of rural population) due to reclassification of areas also. The organization of the paper is as follows. In the next section of the paper we present the analytics of the decomposition exercise, based on the methodology of Mazumdar and Son (2002). Section 3 analyses the results of the decomposition exercise and brings out the regional variability in the mean effect, inequality effect and population shift effect. Section 4 relates these regional variations to broad indicators of economic reforms implemented at the state level. And finally section 5 summarizes the major findings.

2. Technical Framework

Decomposing the change in the poverty index into a growth and distribution effect was initiated by Kakwani and Subbarao (1990) and Jain and Tendulkar (1990) while quite a few alternative decomposition methods have been developed subsequently, for example by Datt and Ravallion (1992), Kakwani (2000) and Mazumdar and Son (2002) and a synthesis of these methods is given in the Appendix. In the present study, we estimate the following equation to decompose the change in the incidence of poverty in terms of mean effect, inequality effect and the effect due to population shift from rural to urban areas, in fifteen major Indian states individually, and at the all-India level for the two sub-periods 1983 to 1993-94 and 1993-94 to 1999-2000.

Assuming that there are two demographic groups as i=1 and 2, the rate of change in the incidence of poverty can be expressed as,

$$\frac{\Delta P}{P} = \sum_i \frac{\bar{f}_i P_i}{P} \frac{M_i}{P_i} + \sum_i \frac{\bar{f}_i P_i}{P} \frac{I_i}{P_i} + \sum_i \frac{\overline{P_i} f_i}{P} \frac{\Delta f_i}{f_i}$$

where, f_i and P_i are population share and poverty index of the i[th] group respectively[i], while $\bar{f}_i$ and $\bar{P}_i$ are the i[th] 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. 'M_i' and 'I_i' are the poverty change due to mean effect and inequality effect for the i[th] group, respectively. 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 i[th] group. In our present analysis 'i' stands for rural and urban areas.

Database

In this study we try to decompose the changes in poverty over two periods, i.e., 1983 to 1993-94 and 1993-94 to 1999-2000, and for two regions, i.e., rural and urban, in fifteen major Indian states and also at the all India level by using the decomposition methodology developed by Kakwani (2000) and Majumdar and Son (2002), that is discussed in detail in the Appendix. For the purpose of comparison, we have taken the distribution of consumer expenditure data from the 38[th,] 50[th] and 55[th] rounds of Consumer Expenditure surveys conducted by National Sample Survey Organisation for the years 1983, 1993-94 and 1999-00 respectively.[ii] For the purpose of comparison, we have also adjusted the base year expenditures with the prices of terminal year. The price indices used are state specific price deflators for rural and urban areas separately, which were used in the modified expert group methodology to update the poverty line of Rs.49 and Rs.56.6 in 1973-74 prices for rural and urban areas respectively (National Human Development Report, 2001). It was found 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 number of persons and the per-capita expenditure within the class interval are proportionately related. We have interpolated the population for 1983, 1993-94 and 1999-2000 based on the population census data.

3. Empirical Analysis

At the all-India level the fall in the incidence of poverty in the nineties (1993/94 through 1999/00, period 2 hereafter) seems to be higher than during 1983 to 1993/94 (period 1 hereafter). The rural-urban differences are noteworthy: rural poverty dropped by a little more than 10 percentage point in the second period, whereas it was around 8.3 percentage point in the first period, and urban poverty fell by 8.38 and 8.74 percentage points in periods 1 and 2, respectively (see Table 1). At the state level, except for Assam and Haryana all the other states registered a fall in the incidence of rural poverty in the eighties, and in the nineties each of the major states recorded a decline. In the case of urban areas excepting Andhra Pradesh and Orissa in the eighties and nineties, respectively all the other states show a decline in the incidence of poverty. However, the extent of decline varies considerably across states though in the rural areas it seems to have fallen in the nineties compared to the eighties: the coefficient of variation of the change in rural poverty dropped from 98.75 in the first period to 51.03 in the second period. On the other hand, the coefficient of variation increased from 61.58 to 70.21 in the urban areas of the states during the same period indicating a rise in the inter-state variations of change in the incidence of urban poverty in the post-reform period.

<insert Table-1 here>

It may be interesting to spell out our hypothesis at this stage. As economic reforms are likely to bring in higher growth, the growth or mean effect is expected to go up in the second period. Though the extent of fall in the incidence of urban poverty in the nineties has been only marginally higher than that in the eighties as noted above, the hypothesis of a higher growth or mean effect in the second period may still be valid. In addition to this, the inequality effect might have fallen in the second period compared to the first if economic reforms aim at

generating pro-poor growth, that is, employment generation occuring in the process of economic growth (Kakwani and Pernia, 2000). Further, as the coefficient of variation of change in the incidence of urban poverty rose in the nineties over the eighties we can hypothesize that the economic reforms executed at different levels across states have generated different mean and/or inequality effects.

From Table 2 it may be noted that the growth/mean effect dominated over the inequality effect as well as the population shift effect in most of the states during 1983 to 1993/94, which brought in a decline in the observed poverty ratio. Even in rural Assam and Haryana, where the observed poverty ratio actually increased between 1983 and 1993-94, the growth effect mainly accounted for this rise. However, in urban Andhra Pradesh, the rise in observed poverty has been caused by all the three components - growth, inequality and population shift. In fact the population shift effect turns out to be slightly higher than the growth effect. In all the other states, a decline in the observed poverty incidence in the rural and urban areas is mainly attributed to the growth effect.

Though the inequality effect was positive in sign suggesting that in the process of growth inequality rose and accentuated poverty, it could not neutralize the beneficial effects of growth on poverty (see Table 2). In the rural areas of Gujarat, Orissa, Rajasthan and Uttar Pradesh, and in the urban areas of Haryana, Karnataka, Kerala, Punjab and Rajasthan, the inequality effect turned out to be negative in sign suggesting that inequality fell in the process of growth and thus contributed along with the mean effect to a reduction in poverty.

<insert Table-2 here>

<insert Table-3 here>

Due to rising levels of urbanization (percentage of population residing in the urban areas) though urban poverty increased, the decline in the percentage of rural population ushered in more than a proportionate fall in rural poverty in several states such as Assam, Bihar, Haryana, Maharashtra, Orissa, Uttar Pradesh and West Bengal. Thus in these states, the population shift effect helped the all-area combined poverty to decline during the period 1983 to 1993/94 (see Table 2).

In the post-reform period, the growth effect continued to dominate over the other two effects, and it also accounted for much of the decline in the incidence of poverty in most of the states (see Table 3). The only exception in this respect is urban Orissa, where the observed poverty rose by 1.19 percentage points caused by both adverse growth and inequality effects. In urban India though the growth effect continued to be dominant in the post-reform period, it is interesting to note that the adverse effect of inequality fell in this period compared to the eighties and became almost negligible. Secondly, despite a rise in the adverse effects of inequality in rural India in the second period relative to the first, in a large number of states (e.g. rural areas of Bihar, Haryana, Kerala, Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal) the inequality effect turned out to be beneficial in the sense that like the growth effect it too helped poverty to fall. As regards the population shift effect, it continued to be beneficial at the all-India level. In other words, the fall in the incidence of rural poverty due to a decline in the percentage of rural population continued to be more than the rise in the incidence of urban poverty caused by the rise in the level of urbanization between 1993-94 and 1999-00. However, in terms of magnitude the population shift effect for all areas fell marginally from –0.3 in the first period to –0.21 in the second period.

On the whole, the beneficial effect of growth on poverty increased in magnitude in the second period relative to the first period in several states both in the rural and urban areas (see Table 4). Except Andhra Pradesh, Madhya Pradesh, Orissa, Tamil Nadu and West Bengal, the rural areas of all other states recorded an improvement in the growth effect. Similarly, except Assam, Bihar, Kerala, Orissa, Punjab and Uttar Pradesh, the urban areas of all other states registered an increase in the growth effect. The adverse effect of inequality corresponding to all areas (rural-urban combined) fell in several states like Andhra Pradesh, Bihar, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Tamil Nadu, Uttar Pradesh and West Bengal though at the all-India level it went up from 1.07 per cent to 1.63 per cent.

<insert Table-4 here>

Based on Tables 2 and 3 different size classes have been formed representing the growth effects in both the periods, and the states have been distributed across these size classes. If the growth effect is greater than zero (> 0) it is considered to be adverse as it raises the incidence of poverty instead of reducing it. The higher is the magnitude with a negative sign, the higher is the beneficial growth effect. Table 5, which corresponds to the rural areas of the states, offers a mixed picture. While states like Madhya Pradesh, Orissa, Andhra Pradesh, West Bengal and Tamil Nadu moved from relatively higher size classes in period 1 to relatively lower size classes in period 2, several other states moved to higher size classes of growth effect from the lower size classes over the same period. On the other hand in the urban areas, relatively few states like Orissa, Kerala and Punjab moved down from higher size classes in the first period to lower size classes in the second period and states like Andhra Pradesh and Tamil Nadu experienced a perceptible rise in terms of growth effect (see Table 6). However, a large number of states remained in the same size class of growth effect in both the periods. But

notwithstanding this stagnancy, the growth effect in the urban areas does not seem to have deteriorated in a large number of states.

<insert Table-5 here>

<insert Table-6 here>

It would be interesting to examine whether states with a higher growth effect particularly in the urban areas in the nineties over the eighties also experienced lower magnitudes of an adverse population shift effect in the urban areas. The answer is in the affirmative because several states like Andhra Pradesh, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh and West Bengal which recorded a higher growth effect in the urban areas in the nineties relative to the eighties also experienced a lower population shift effect in the urban areas. The only exception is Tamil Nadu.[iii] In other words, these are the states where higher growth effects in the post-reform period reduced the extent of rise in the incidence of urban poverty occurring in the process of rising urbanisation. From this it may be inferred that as reforms enhanced the growth effects in the urban areas of several states, they also reduced the deleterious effects of population rise on poverty in the urban areas of the same states.

4. Reforms, Divergence and Beneficial Effects of Growth

It has been widely noted that economic growth varies considerably across space; even within India, states have recorded different growth rates, which do not seem to have any tendency towards convergence in the long run (Sachs, Bajpai and Ramiah, 2002). Such divergence across states is noted not only in terms of growth in the state domestic product but also in terms of growth in average per capita consumption expenditure (Deaton and Dreze, 2002). Among

several factors that influence economic growth, industrial performance has been described as an engine of growth implying that equalization of industrial productivity can bring in equalization of economic growth across space. In stepping up the economic growth we often refer to industrialization, though from argumentative point of view any sector can result in higher levels of growth. But since agriculture, particularly in a developing economy context, is severely constrained by social, institutional and economic factors it is less likely to accelerate the economic growth. Besides, as per Kuznet's (1966) perception of modern economic growth, it is agriculture, which loses its share both in terms of value added and work force in the process of economic growth. On the other hand, the tertiary sector value added cannot be interpreted similar to the value added originating from the commodity producing sector since the factor (labour) income and value added are not distinguishable in the case of tertiary sector. Besides, the concept of value added is not clear relating to various tertiary activities (Bhattacharya and Mitra, 1991 and 1997). Hence, it is the industry-led- growth that has been the prime focus, and factors relating to manufacturing productivity are considered crucial for economic progress, enabling the low income regions to catch up with their high income counterparts within a finite time horizon. Hence, factors that explain inter-spatial variations in industrial productivity are indeed the cause of variations in economic growth too. In this paper we argue that differences in growth are related to variations in industrial productivity across Indian states, hypothesizing that external economies of scale account for an important source of such variations.

What do we mean by productivity? Total factor productivity growth, which is an important index of industrial performance, can broadly be divided into two components: technological progress (or regress) and change in technical efficiency. While improvement in technology means an overall shift in the production function, rise in technical efficiency indicates

movement towards the frontier or better utilization of the available technology. While factors like technology etc. are internal to the firm, availability of infrastructure, better quality of inputs, large demand potential in the local market and cost relating to information sharing etc. are location specific and they are indeed external to the firm. The literature on such external economies of scale is vast and has recognized mainly two varieties - urbanization economies and localization economies. Our major contention is to dwell upon such factors, which are external to manufacturing firms and yet influence their productivity levels. Several studies in the past noted a strong positive association between economic growth and the level of urbanization across Indian states (Gupta and Mitra, 2001; Sachs, Bajpai and Ramiah, 2002). Hence, this provides a strong basis to hypothesize that external economies of scale related to urbanization level (or city size) are determinants of industrial productivity, which in turn is directly related to economic growth. It may be added here that economic reforms have a direct influence on productivity as infrastructure supply, concentration of activities and other factors constituting the external economies of scale are likely to grow with reforms. Hence with differences in the level of reforms pursued across states productivity and growth differentials are likely to grow, indicating the tendency of divergence rather than convergence. But the fact that reforms improve economic growth implies that the growth or mean effect on poverty too rises, though the variation in the mean effect across regions may actually fall as states with slower improvements in growth may show a tendency of catching up (in terms of mean effect on poverty) with states with higher growth. The demonstration effect of good governance in states with larger improvements in economic growth on states with sluggish improvements in economic growth may contribute to this spirit of catching up. This means that as the slowly growing states imitate the lessons of good governance – a pre-requisite of growth - from the

rapidly growing states, the beneficial effects on poverty reduction start operating much before they actually start replicating the growth experience of the later.

Table 7 gives figures on per capita net state domestic product, growth rate of state domestic product, share of manufacturing in state domestic product and the level of urbanization defined as the percentage of population living in urban areas. Based on state-specific figures on net domestic product the annual growth rates across states have been calculated over the period 1990-1 through 1997-98. It may be noted that each of the variables across states varies over a wide range of values. In some of the states like Bihar the per capita net state domestic product has been as low as Rs.1073 in 1997-98 (in 1980-81 prices) whereas in some of the industrialized states like Maharashtra and Gujarat and agriculturally prosperous states like Punjab and Haryana it has been almost four times higher. The growth rate of the state domestic product also shows high variability. At the lowest level is Bihar with a negligible growth rate of merely 0.5 per cent per annum whereas Gujarat, Maharashtra and West Bengal registered a growth rate of around 6.5 per cent or more in the nineties. Orissa is another state with a low per capita income, which recorded a growth rate of 4.6 per cent per annum whereas Uttar Pradesh with almost the same level of per capita income in 1997-98 experienced a growth rate of only 2.6 per cent. On the other hand, other prosperous or moderately rich states in terms of per capita income at least did not experience sluggish economic growth. Hence, it may be suggested that rich states have shown a tendency of becoming richer whereas poor states by and large experienced a sluggish economic growth, though Orissa is a glaring exception.

The other two variables, which also show wide variability, are level of industrialization and urbanization. The share of manufacturing in total net domestic product has been more than 30 per cent in some of the states like Gujarat, Karnataka and Maharashtra. Agriculturally

prosperous states like Haryana and Punjab also show a reasonably high level of industrialization (around 20 per cent). On the other hand, Bihar, Orissa and Rajasthan seem to be having even less than 15 per cent of net state domestic product originating from manufacturing. Keeping pace with the level of industrialization, the percent urban also turns out to be high in Maharashtra, Gujarat Karnataka and Tamil Nadu. Punjab and Haryana also have around 34 and 29 per cent of their population residing in the urban areas, respectively. Bihar on the other hand turns out to be least urbanized. These patterns tend to suggest that states with higher urbanization have experienced higher industrialization, which in turn contributed to higher economic growth. With the initiation of economic reforms in the nineties investments seem to have looked for spatially strategic opportunities so as to benefit from location aspects, which would enhance returns both by reducing cost and augmenting production. This provides us a basis to hypothesize that agglomeration economies play a major role in enhancing total factor productivity growth and economic growth across states.

Notwithstanding these divergences the convergence in the growth/mean effect on poverty in the post-reform period is quite evident from Tables 2 and 3. From the decomposition analysis, as we examine, the coefficient of variation of the growth/mean effect across states, a perceptible decline seems to have taken place in the second period compared to the first. In the rural areas it dropped from 113.64 in the first period to 57.84 in the post-reform period and in the urban areas the fall was from 92.87 to 79.41 during the same period. This tends to support our argument that despite the divergence arising from economic reforms pursued at different levels across states, the beneficial effects with regard to poverty reduction has a converging tendency possibly because of good governance in rapidly growing states and its demonstration effect in slowly growing states, as mentioned above.

<insert Table-7 here>

Certain indicators of economic reforms may be perceived in terms of the level of FDI (Foreign Direct Investment), change in fiscal deficit (as a percentage of Gross State Domestic Product, (GSDP)) and the change in public-private employment ratio (in the organized sector). The data on FDI show considerable variations across states, which have again undergone changes over the years. In fact only six states namely Delhi, Karnataka, Andhra Pradesh, Tamil Nadu, Gujarat and Maharastra have attracted a bulk of the FDI with a negligible share in other states. By the end of the last decade the distribution of FDI among these top states was as follows: Delhi (9%), Karnataka (19%), Andhra Pradesh (11%), Tamil Nadu (20%), Gujarat (9%) and Maharastra (32%) (Economic Survey of Karnataka, 2001-02). From Table 8 it may be further noted that states such as Andhra Pradesh, Gujarat, Karnataka, Kerala, Maharastra, Punjab, and Tamil Nadu experienced a sharp decline in the public-private employment ratio between 1991 and 2000. The figures in Table 8 give the proportion of the base year (1991) public-private employment ratio to the terminal year (2000) public-private employment ratio; hence, the larger the ratio the higher is the shift away from the public sector, which is taken as an outcome of shrinking public sector following from the structural adjustment programme.

In terms of fiscal deficit as a percentage of GSDP it may also be noted that fiscal reforms seem to have taken place in Andhra Pradesh, Karnataka, Kerala, Madhya Pradesh, Punjab and Tamil Nadu. Taking FDI as a major indicator and any one of the other two, the following states may be identified as the most reform-oriented: Andhra Pradesh, Karnataka, Gujarat, Maharashtra and Tamil Nadu. Interestingly these states also experienced a perceptible increase in the growth/mean effect in the urban areas in the post-reform period over the pre-reform period (see Table 5). Even in the rural areas of Gujarat, Karnataka and Maharashtra the growth effect on poverty increased during the same period (see Table 6). Though the growth effect in rural

Andhra Pradesh and Tamil Nadu declined in the second period, it has still been much higher than that of many other states.

<insert Table-8 here>

In Andhra Pradesh and Tamil Nadu inequality seems to have increased in the process of growth in the urban areas in the second period, which raised the deleterious effect of inequality on poverty. However, in the other three states, the inequality effect fell in the second as compared to the first period. Though urban poverty increased due to a rise in urbanization, except for Tamil Nadu, in all the other four states its adverse effect came down sharply.[iv] On the whole, reforms seem to have had a positive effect on poverty in these states. And conversely the remaining nine states, where reforms have not been initiated on a large scale, do not seem to have experienced any major increase in the growth\mean effect on poverty in the urban areas in the second period as compared to the first. Hence, a wider implementation of reforms across states can reduce poverty sharply in the coming years.

5. Conclusion

In this an attempt has been made to assess the impact of economic reforms on poverty in terms of a decomposition analysis splitting the percentage change in the incidence of poverty between two time points in terms of growth/mean effect, inequality effect and the population shift effect. This has been pursued for two time periods: one from 1983 to 1993-94 and another from 1993-94 to 1999-00, described as pre-reform and post-reform periods, though strictly speaking reforms were initiated since July 1991. While the growth/mean effect has been dominant and has resulted in a decline in the incidence of poverty in both the periods and in most of the states, inequality, which in general rose in the process of growth, raised the poverty ratio at the all-India level. However, in the rural areas of a large number of states the inequality effect turned out to be beneficial in the second period. Even in the urban areas of several states

and at the all-India level too the adverse inequality effect fell considerably in the second period compared to the first. The population shift effect, which measures the net effect of a rise (and fall) in the percentage of population residing in urban (and rural) areas on the incidence of poverty, appeared to be beneficial in at least seven of the fifteen major states and at the all-India level too, in both the periods. In other words, the overall incidence of poverty in these states fell, though rural-urban migration might have raised the incidence of urban poverty.

Economic reforms have been pursued at different levels across states, and this seems to have enhanced the inter-state variations in economic growth. Economic growth is largely dependent on industrial productivity, which in turn is a function of agglomeration economies. Economic reforms seem to have generated an effect on factors, which broadly fall into this class of agglomeration economies, and hence, economic growth across states has shown divergence instead of convergence. But, interestingly, the beneficial growth/mean effect on poverty increased in magnitude in most of the states in the post-reform period relative to the pre-reform period and more importantly, its variation across states dropped considerably. This is possibly because of good governance in the rapidly growing and reforming states, and the demonstration effect of this in the slowly growing states. The deleterious effect of inequality on poverty also shows a declining tendency in several states in the post-reform phase compared to its previous period. The population shift effect, which showed a tendency of raising urban poverty, also fell in magnitude in the second period compared to the first, across states. And states with greater beneficial growth effects in the second period relative to the first also show lower adverse population shift effects in the urban areas, that is a relatively less rise in the incidence of urban poverty caused by rural-urban migration. Indicators of reforms show a close association with rise in growth effects, indicating that both economic growth and its ability to reduce poverty are conceded in the reforming process. However, reforms have been pursued

only on a limited scale and that too in a few states. To reap far-reaching benefits a great deal is to be done yet. The non-reforming states, if not integrated into the process of economic reforms immediately, will have to face the dire consequences of socio-economic unrest in the near future. A strategy of growth with employment generation would help the poor benefit from economic reforms, and this would not only enhance the growth effect but would also make inequality and population shift effects more beneficial to poverty reduction.

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Appendix

Let the change in poverty between two periods 'j' and 'k' be '$\ddot{A}P_{jk}$' and the incidence of poverty be,

$$P = P(Z, m, L(t)) \qquad \ldots\ldots(1)$$

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

And the change in poverty can be defined as,

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

where 'M_{jk}' and 'I_{jk}' are change in poverty due to mean and inequality effect respectively. Kakwani & Subbarao (1990) estimated 'M_{jk}' by taking the change in mean and keeping Lorenz curve of the 'j^{th}' period constant. 'I_{jk}' has been estimated by taking the change in Lorenz curve and keeping mean of the 'j^{th}' period constant. But this decomposition was not an exact one and contains the residual term. Datt & Ravallion (1992) has defined this residual term as

$$e_{jk} = -M_{kj} - M_{jk} \qquad \ldots\ldots.(3)$$

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

Another method suggested by Jain & Tendulkar (1990) defines that the change in poverty can be decomposed as

$$\Delta P_{jk} = M_{jk} + I^{*}_{jk} \text{ and } \Delta P_{jk} = M^{*}_{jk} + I_{jk}$$

where

$$M^{*}_{jk} = P(Z, m_k, L_k(t)) - P(Z, m_j, L_k(t)) \text{ and}$$

$$I^{*}_{jk} = P(Z, m_k, L_k(t)) - P(Z, m_k, L_j(t))$$

Though this procedure is an exact one, this was criticised 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

$$M^{*}_{jk} = \frac{1}{2}[P(Z, m_k, L_j(t)) - P(Z, m_j, L_j(t)) + P(Z, m_k, L_k(t)) - P(Z, m_j L_k(t))] \qquad \ldots(4)$$

and

$$I^{*}_{jk} = \frac{1}{2}[P(Z, m_j, L_k(t)) - P(Z, m_j, L_j(t)) + P(Z, m_k, L_k(t)) - P(Z, m_k L_j(t))] \quad \ldots.(5)$$

Hence the decomposition would be written as,

$$\Delta P_{jk} = M^{*}_{jk} + I^{*}_{jk} \qquad \ldots\ldots.(6)$$

In addition to the growth and inequality effect, Mazumdar and Son (2002) included the population shift effect in the decomposition exercise.

Assuming that there are two demographic groups as i=1 and 2, 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. $\bar{f}_i$ 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.

Table 1: Change in the incidence of poverty in eighties and nineties

States	Change in rural poverty between 1983 & 1993-94	Change in rural poverty between 1993-94 &1999-00	Change in urban poverty between 1983 &1993-94	Change in urban poverty between 1993-94 &1999-00	Change in all areas poverty between 1983 &1993-94	Change in all areas poverty between 1993-94 &1999-00
AP	-10.61	-4.87	2.03	-11.7	-6.72	-6.42
Assam	2.41	-4.97	-14	-0.26	0.39	-4.77
Bihar	-6.16	-13.91	-12.83	-1.59	-7.26	-12.36
Gujarat	-7.62	-9.01	-11.25	-12.3	-8.58	-10.14
Haryana	7.46	-19.75	-7.77	-6.39	3.68	-16.31
Karnataka	-6.45	-12.5	-2.68	-14.89	-5.08	-13.12
Kerala	-13.27	-16.38	-21.13	-4.28	-14.99	-12.71
MP	-8.26	-3.58	-4.68	-9.94	-7.26	-5.09
Maharastra	-7.3	-14.21	-5.11	-8.34	-6.58	-11.84
Orissa	-17.81	-1.71	-7.51	1.19	-16.73	-1.41
Punjab	-1.25	-5.6	-12.44	-5.6	-4.41	-5.61
Rajastan	-7.04	-12.72	-7.45	-10.64	-7.05	-12.13
TN	-21.51	-11.93	-7.19	-17.66	-16.63	-13.91
UP	-4.17	-11.06	-14.43	-4.5	-6.22	-9.7
WB	-22.25	-8.95	-9.91	-7.55	-19.19	-8.64
India	-8.38	-10.18	-8.43	-8.74	-8.51	-9.87

Note: The change is indicated in terms of the terminal year figure minus the base year figure.

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

States	Growth			Inequality			Population			Total		
	Rural	Urban	All areas	Rural	Urban	All areas	Rural	Urban	All areas	Rural	Urban	All areas
AP	-28.69	1.3	-27.39	1.73	0.69	2.42	-2.17	3.81	1.64	-29.13	5.8	-23.33
Assam	4.96	-3.77	1.19	0.35	0.04	0.39	-1.48	0.5	-0.98	3.83	-3.23	0.6
Bihar	-8.72	-2.72	-11.44	0.1	0.06	0.16	-0.59	0.39	-0.2	-9.21	-2.27	-11.48
Gujarat	-12.54	-12.34	-24.88	-2.92	0.86	-2.06	-2.72	3.5	0.79	-18.18	-7.98	-26.16
Haryana	26.54	-7.79	18.75	1.25	-1.51	-0.26	-7.21	6.01	-1.19	20.59	-3.29	17.3
Karnataka	-11.75	-1.97	-13.72	0.03	-0.17	-0.14	-2.06	2.58	0.52	-13.78	0.44	-13.34
Kerala	-25.57	-12.06	-37.63	0.35	-0.06	0.29	-4.97	5.38	0.42	-30.18	-6.74	-36.92
MP	-14.23	-2.58	-16.8	1.32	0.49	1.81	-2.5	2.83	0.33	-15.41	0.74	-14.66
Maharastra	-11.92	-5.15	-17.07	1.44	0.72	2.16	-3.69	3.35	-0.34	-14.17	-1.08	-15.25
Orissa	-22.75	-1.53	-24.28	-1	0.04	-0.96	-1.49	1.16	-0.34	-25.25	-0.33	-25.58
Punjab	-7.82	-21.71	-29.53	2.36	-0.83	1.53	-1.99	2.78	0.79	-7.45	-19.76	-27.21
Rajastan	-15.77	-4.64	-20.41	-0.12	-0.15	-0.28	-1.4	1.6	0.2	-17.29	-3.2	-20.5
TN	-27.42	-5.2	-32.62	0.28	0.36	0.63	-2.74	2.75	0.01	-29.88	-2.1	-31.98
UP	-6.78	-6.23	-13.01	-0.38	0.34	-0.04	-1.71	1.65	-0.07	-8.87	-4.25	-13.12
WB	-29.61	-4.98	-34.59	0.05	0.08	0.13	-0.9	0.47	-0.43	-30.46	-4.43	-34.89
India	-14.28	-5.66	-19.94	0.19	0.89	1.07	-2.59	2.28	-0.3	-16.68	-2.49	-19.17
C.V	-113.64	-92.87	-77.26	392.03	951.82	309.56	-67.79	65.50	940.77	-93.72	-161.96	-76.42

Note: C.V is coefficient of variation across the states (excluding all India).

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

States	Growth			Inequality			Population			Total		
	Rural	Urban	All areas	Rural	Urban	All areas	Rural	Urban	All areas	Rural	Urban	All areas
AP	-16.93	-14.43	-31.35	1.5	0.79	2.3	-0.06	0.16	0.09	-16.09	-14.08	-28.96
Assam	-11.72	-0.32	-12.04	1.01	0.11	1.12	-1	0.18	-0.82	-11.71	-0.03	-11.74
Bihar	-21.67	-0.43	-22.1	-0.28	0.04	-0.24	-0.12	0.08	-0.04	-22.07	-0.31	-22.38
Gujarat	-24.35	-18.31	-42.66	0.54	0.01	0.55	-1.23	1.51	0.28	-25.04	-16.79	-41.83
Haryana	-55.08	-8.55	-63.63	-1.82	0.39	-1.43	-0.16	0.11	-0.04	-57.06	-8.05	-65.11
Karnataka	-25.48	-14.14	-39.63	0.06	-0.48	-0.42	-1.29	1.78	0.49	-26.71	-12.84	-39.55
Kerala	-46.33	-3.56	-49.89	-0.23	0.16	-0.07	0.18	-0.22	-0.05	-46.39	-3.63	-50.01
MP	-5.93	-5.62	-11.55	-0.45	-0.02	-0.48	-0.96	1.07	0.11	-7.35	-4.57	-11.92
Maharastra	-21.73	-9.52	-31.24	-1.14	0.31	-0.83	-1.83	1.84	0.01	-24.7	-7.36	-32.06
Orissa	-3.45	0.34	-3.11	0.43	0.01	0.44	-0.95	0.82	-0.13	-3.97	1.17	-2.8
Punjab	-34.23	-15.67	-49.9	1.82	0.5	2.32	-2.01	1.88	-0.13	-34.42	-13.29	-47.71
Rajastan	-35.5	-9.64	-45.14	-0.17	0.65	0.49	-0.22	0.27	0.06	-35.88	-8.71	-44.59
TN	-20.28	-20.36	-40.63	-0.38	0.52	0.14	-4.37	5.1	0.73	-25.03	-14.74	-39.76
UP	-21.48	-2.16	-23.65	-0.05	-0.09	-0.14	-0.61	0.55	-0.06	-22.15	-1.7	-23.85
WB	-17.62	-6.25	-23.87	-0.51	0.37	-0.14	-0.33	0.17	-0.16	-18.46	-5.71	-24.17
India	-22.12	-6.72	-28.83	1.59	0.04	1.63	-1.65	1.43	-0.21	-22.17	-5.25	-27.42
C.V	-57.84	-79.41	-51.35	4284.22	151.03	430.90	-114.24	131.32	1495.49	-55.91	-80.35	-51.73

Note: C.V is coefficient of variation across the states (excluding all India).

Table 4: Change in Growth, Inequality and population shift effects between period 2 and period 1

States	Growth			Inequality			Population			Total		
	Rural	Urban	All areas	Rural	Urban	All areas	Rural	Urban	All areas	Rural	Urban	All areas
AP	11.76	-15.73	-3.96	-0.23	0.1	-0.12	2.11	-3.65	-1.55	13.04	-19.88	-5.63
Assam	-16.68	3.45	-12.97	0.66	0.07	0.73	0.48	-0.32	0.16	-15.54	3.23	-12.34
Bihar	-12.95	2.29	-10.66	-0.38	-0.02	-0.4	0.47	-0.31	0.16	-12.86	1.96	-10.9
Gujarat	-11.81	-5.97	-17.78	3.46	-0.85	2.61	1.49	-1.99	-0.51	-6.86	-8.81	-15.67
Haryana	-81.62	-0.76	-82.38	-3.07	1.9	-1.17	7.05	-5.9	1.15	-77.65	-4.76	-82.41
Karnataka	-13.73	-12.17	-25.91	0.03	-0.31	-0.28	0.77	-0.8	-0.03	-12.93	-13.28	-26.21
Kerala	-20.76	8.5	-12.26	-0.58	0.22	-0.36	5.15	-5.6	-0.47	-16.21	3.11	-13.09
MP	8.3	-3.04	5.25	-1.77	-0.51	-2.29	1.54	-1.76	-0.22	8.06	-5.31	2.74
Maharastra	-9.81	-4.37	-14.17	-2.58	-0.41	-2.99	1.86	-1.51	0.35	-10.53	-6.28	-16.81
Orissa	19.3	1.87	21.17	1.43	-0.03	1.4	0.54	-0.34	0.21	21.28	1.5	22.78
Punjab	-26.41	6.04	-20.37	-0.54	1.33	0.79	-0.02	-0.9	-0.92	-26.97	6.47	-20.5
Rajastan	-19.73	-5	-24.73	-0.05	0.8	0.77	1.18	-1.33	-0.14	-18.59	-5.51	-24.09
TN	7.14	-15.16	-8.01	-0.66	0.16	-0.49	-1.63	2.35	0.72	4.85	-12.64	-7.78
UP	-14.7	4.07	-10.64	0.33	-0.43	-0.1	1.1	-1.1	0.01	-13.28	2.55	-10.73
WB	11.99	-1.27	10.72	-0.56	0.29	-0.27	0.57	-0.3	0.27	12	-1.28	10.72
India	-7.84	-1.06	-8.89	1.4	-0.85	0.56	0.94	-0.85	0.09	-5.49	-2.76	-8.25
C.V	-212.86	-299.98	-166.38	-518.29	467.91	-950.42	138.65	-135.09	-1200.83	-229.41	-189.8	-163.95

Note: 1) C.V is coefficient of variation across the states (excluding all India).

2) Change is defined as the effect in the second period minus the corresponding effect in the first period.

Table 5: Cross tabulation of states in terms of growth effect on poverty changes in two periods in the rural areas

Growth effect		1993/94 – 1999/2000					
		> 0	0 to -10	-10 to -15	-15 to -20	-20 to -25	-25 and above
1983-1993/94	> o			Assam			Haryana
	0 to –10					Bihar, Uttar Pradesh	Punjab
	-10 to –15		Madhya Pradesh			Gujarat, Maharastra, All India	Karnataka
	-15 to –20						Rajasthan
	-20 to –25		Orissa				
	-25 & above				Andhra Pradesh, West Bengal	Tamil Nadu	Kerala

Table-6: Cross tabulation of states in terms of growth effect on poverty changes in two periods in the urban areas

Growth effect		1993/94-1999/2000					
		> 0	0 to -10	-10 to -15	-15 to -20	-20 to -25	-25 & above
1983-1993/94	> 0			Andhra Pradesh			
	0 to –10	Orissa	Assam, Bihar, Haryana, M.P, Maharastra, Rajasthan, U.P, W.B, All India	Karnataka		Tamil Nadu	
	-10 to –15		Kerala		Gujarat		
	-15 to –20						
	-20 to –25				Punjab		
	-25 & above						

Table 7: State specific growth rates, urban population and level of industrialisation

State	Per Capita NSDP (1997/8) (Rs. per month in 1980-81 prices)	Annual Growth Rate of NSDP in 1980-81 prices over 1990-91 to 1997-98 (%)	% Urban (1991)	% Urban (2001)	Share of Manufacturing in NSDP (1997-98) in 1980-81 prices
Andhra Pradesh	2413	3.97	26.78	27.08	19.73
Bihar	1073	0.54	13.14	10.47	14.39
Gujarat	3976	7.58	34.49	37.35	35.91
Haryana	3997	3.96	24.63	29.00	21.26
Karnataka	2761	5.81	30.92	33.98	30.14
Kerala	2444	5.59	26.39	25.97	13.66
Madhya Pradesh	1961	4.05	23.18	26.67	18.59
Maharashtra	4791	6.51	38.69	42.40	30.14
Orissa	1688	4.64	13.38	14.97	12.09
Punjab	4416	4.57	29.55	33.95	21.26
Rajasthan	2306	4.49	22.88	23.38	11.01
Tamil Nadu	3057	5.45	34.15	43.86	20.73
Uttar Pradesh	1757	2.62	19.84	20.78	15.37
West Bengal	3002	6.49	27.48	28.03	16.32

Note: Annual growth rates of net state domestic product (NSDP) are point to point estimates.

Source: Census of India, 2001, Press Release on Rural-Urban Distribution of Population – India and States/ Union Territories: 2001 and Estimates of State Domestic Product, Central Statistical Organisation, Government of India.

Table 8: Some indicators for the extent of economic reforms at state level

States	Ratio of public to private employment ratio in 1991 vis-à-vis the ratio in 2000[1]	Change in Fiscal Deficit/GSDP between 1994-95 to 1999-00[2]
Andhra Pradesh	1.40	-0.8
Assam	0.94	---
Bihar	1.02	-5.6
Gujarat	1.15	-3.1
Haryana	1.06	-2.9
Karnataka	1.60	0.1
Kerala	1.08	-1.3
Madhya Pradesh	0.96	-1.5
Maharashtra	1.07	-2.7
Orissa	0.73	-2.8
Punjab	1.12	-1.6
Rajasthan	1.05	-3.2
Tamil Nadu	1.29	-1.5
Uttar Pradesh	1.03	-2.4
West Bengal	0.93	-5.4

Source: 1) Calculated from figures given in National Human Development Report, 2001.
2) Economic Survey of Karnataka, 2001-02

[i] Here we have taken the rate of change in the incidence of poverty, defined as the change in the head count measure of poverty between two time points relative to the base year poverty incidence. This being a standardized variable, the difference in the time length of two periods need not render the variable incomparable between eighties and nineties.

[ii] Strictly speaking the results from 55th round data on consumption expenditure are not comparable with the earlier rounds because of the possible intermingling of responses due to adoption of dual recall periods (7 days and 30 days) in the 55th round. For details see Deaton and Dreze (2002) and Sundaram (2001).

[iii] Tamil Nadu recorded a massive increase in urban population between 1991 and 2001 census years possibly due to re-classification of areas as urban in 2001, which were rural in 1991. As a result there has been a decline of rural population in 2001 compared to 1991, even in absolute terms. Decline in fertility alone could not have caused this because it could not have fallen only in the rural areas, but in rural and urban areas both. Also it is unlikely that fertility decline would bring in a fall in population in absolute terms. Rural-to-urban migration also could not have reduced the rural population in absolute terms. Rapid increase in so-called urban population caused urban poverty to rise.

[iv] In Tamil Nadu re-classification of areas, as mentioned above, led to a massive increase in urban population, which otherwise would have remained as rural areas.