

Economic Growth, Poverty, and Inequality in Indian States in the Pre-reform and Reform Periods

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The paper assesses the impact of economic reforms on poverty incidence by decomposing the change in poverty ratio into growth/mean effect, inequality effect, and population shift effect for the rural and urban areas of 15 major states and at the all-India level. Using National Sample Surveys, data were analyzed for two time periods: (i) 1983 to 1993/4 and (ii) 1993/4 to 1999/2000, broadly representing the pre-reform and reform period, respectively. The growth/mean effect dominates in both periods over the inequality effect and the population shift effect. The growth effect, which is beneficial for poverty reduction, seems to have gone up in the reform period. The adverse inequality effect also fell during the reform period. States with a greater beneficial growth effect in the reform period also show a fall in the magnitude of an adverse population shift effect in the urban areas, i.e., a relatively smaller increase in the incidence of urban poverty caused by rural–urban migration.

I. INTRODUCTION

Pro-market economic reforms are expected to simultaneously accelerate economic growth and at the same time help an economy recover from foreign exchange crises and fiscal imbalances. This is obviously not expected to affect 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 nonpoor. In other words, the positive effects of growth on the poor tend to get offset by the adverse effects of rising inequality emerging, as suggested by Kuznets (1955), in the process of economic growth in the initial stages. However, if economic growth is accompanied by a decline in inequality, the poor benefit

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more than the nonpoor—a situation described in the literature as pro-poor growth (see Kakwani et al. 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 its 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 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 variations; 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 on poverty in different states. This could be done for the pre-reform and reform periods so as to identify the changes that can be attributed to economic reforms.

Population mobility is an outcome of economic growth too. The spatial composition of growth reflected in terms of 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 labor from the rural areas. A large number of empirical studies exist to suggest that rural migrants have been able to escape poverty though they could not graduate to the urban formal sector (Banerjee 1986, Mitra 1994, and Papola 1981). Even when the incidence of urban poverty rises due to rural–urban migration, the decline in the combined poverty ratio may be evident with a fall in the rural poverty incidence occurring in response to out-migration. This is precisely because the weight of urban poverty is much less for combined poverty compared to rural poverty.

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 deeper 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 underestimate of per capita income. As data on income and its distribution is not available, these crude proxies are followed 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. Hence, it may not be justified to perceive the population shift effect purely in terms of rural–urban migration, which can again comprise interstate as well as intrastate streams not deciphered in this study. While interpreting the results, these limitations, therefore, need to be kept in view.

The organization of the paper is as follows. The next section presents the analytics of the decomposition exercise, based on the methodology of Mazumdar and Son (2002). Section III analyzes the results of the decomposition exercise and brings out the regional variability in the mean effect, inequality effect, and population shift effect. Section IV summarizes the major findings.

II. TECHNICAL FRAMEWORK

Several studies in the Indian context have been pursued to assess the impact of economic growth on poverty. Ahluwalia (1978) cited evidence in favor of agricultural growth trickling down to benefit the poor in rural India. Jain and Tendulkar (1990) examined the relative strengths of growth and redistribution in changing the headcount ratio of poverty over the period 1970/1 to 1983. Mitra (1992) showed that the impact of industrial growth on urban poverty was only nominal, which was reconfirmed by Ravallion and Datt (1996) in the case of rural as well as urban areas. Overall, the debate around growth and poverty seems to have arrived at a consensus that growth is necessary, but not sufficient, for poverty reduction. Growth is said to be pro-poor “when it is labor absorbing and accompanied by policies and programs that mitigate inequalities and facilitate income and employment generation for the poor, particularly women and other traditionally excluded groups” (ADB 1999). It is defined as what enables the poor to actively and directly participate in and significantly benefit from economic activity (Kakwani and Pernia 2000). Chen and Ravallion (2000), for instance, have argued that continuing poverty in many countries is the result of persistent inequalities—both economic and non-economic—that prevented the poor from participating in the growth that did occur. Hence, a strategy that is biased in favor of the poor to enable them to benefit proportionally more than the rich needs to be the basis of pro-poor growth (Kakwani and Pernia 2000).

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). A synthesis of these methods is given below.

Let the change in poverty between two periods j and k be ΔP_{jk} and the incidence of poverty be

$$P = P(Z, \mu, L(t)) \quad (1)$$

where P is the poverty ratio, Z is the poverty line, μ mean income (or expenditure), and $L(t)$ the Lorenz ratio.

The change in poverty can be defined as

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

where M_{jk} and I_{jk} are change in poverty due to mean and inequality effect, respectively. Kakwani and 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 and Ravallion (1992) have defined this residual term as

$$\varepsilon_{jk} = -M_{kj} - M_{jk} \quad (3)$$

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

Another method suggested by Jain and Tendulkar (1990) defines 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

$$M_{jk}^* = P(Z, \mu_k, L_k(t)) - P(Z, \mu_j, L_k(t)) \quad \text{and}$$

$$I_{jk}^* = P(Z, \mu_k, L_k(t)) - P(Z, \mu_k, L_j(t))$$

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 a different reference period.

Kakwani (2000) tries to propose a method that takes care of the weaknesses that are found in the previous ones. Kakwani defines the mean and inequality effect as

$$M_{jk}^* = \frac{1}{2} [P(Z, \mu_k, L_j(t)) - P(Z, \mu_j, L_j(t)) + P(Z, \mu_k, L_k(t)) - P(Z, \mu_j, L_k(t))] \quad (4)$$

and

$$I_{jk}^* = \frac{1}{2} [P(Z, \mu_j, L_k(t)) - P(Z, \mu_j, L_j(t)) + P(Z, \mu_k, L_k(t)) - P(Z, \mu_k, L_j(t))] \quad (5)$$

Hence the decomposition would be written as

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

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

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

where f_k and P_k are population share and poverty index of the k^{th} group, respectively,

$$\text{and } \bar{f}_i = \frac{f_{ij} + f_{ik}}{2}, \quad \bar{P}_i = \frac{P_{ij} + P_{ik}}{2}$$

where

f_i and P_i - population share and poverty index of the i^{th} group, respectively

\bar{f}_i and \bar{P}_i - i^{th} group averages of the respective values at two time points

- P - headcount ratio of poverty for all areas (rural and urban combined)
- ΔP - change in poverty between two time points
- Δf_i - change in population share between two time points of the i^{th} group
- I - rural and urban areas

The third term on the right hand side represents the change in poverty due to population shift.

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.

In the present study, equation (7) is estimated to decompose the change in the incidence of poverty in terms of mean effect, inequality effect, and effect due to population shift from rural to urban areas.

Equality, as defined by Tendulkar and Jain (1995), is an unambiguous reduction in poverty as well as an increase in social welfare. However, to judge distributional outcomes entirely on the basis of relative inequality, i.e., in terms of a reduction in the Gini coefficient, could be faulty. This is because the same Gini coefficient can be associated with different Lorenz curves reflecting very different kinds of relative inequalities. Similarly, a simple headcount measure of poverty or the poverty gap index is actually the special case of the Foster-Greer-Thorebecke (1984) poverty index, which captures the severity of poverty. Hence, limitations of the analysis arising from the fact that the headcount measure of poverty is used and that the inequality index implicit in the analysis refers to Gini coefficient, need to be kept in mind while interpreting the results. Further, as the methodology adopted here is an exact decomposition, the inequality effect is derived as a residual after estimating growth effect and population shift effect from the change in poverty incidence.

III. DATABASE

This study decomposes the changes in poverty over two periods, i.e., 1983 to 1993/4 and 1993/4 to 1999/2000, for two regions, i.e., rural and urban, in 15 major Indian states and also at the all-India level using the decomposition methodology developed by Kakwani (2000) and Majumdar and Son (2002). The distribution of consumer expenditure data from the 38th, 50th, and 55th rounds of Consumer Expenditure surveys conducted by the National Sample Survey Organisation for 1983, 1993/4, and 1999/2000 respectively are used for comparison.¹ Also, the base year expenditures have been adjusted according to the

¹Strictly 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

prices in the terminal year. The price indices used are state-specific price deflators for rural and urban areas, which were used in the modified expert group methodology to update the poverty line of Rs49 and Rs56.6 in 1973/4 prices for rural and urban areas, respectively (Planning Commission 2002). The distribution of expenditure class intervals in each round is different. The base year expenditure class intervals have been reclassified in terms of terminal year class intervals. In doing so, it is assumed that the number of persons and the per capita expenditure within the class interval are proportionately related. Population for the three periods is interpolated based on population census data for 1981, 1991, and 2001.

IV. EMPIRICAL ANALYSIS

At the all-India level, the decline in poverty incidence in the 1990s (1993/4 through 1999/2000, period 2 hereafter) is higher than during 1983 to 1993/4 (period 1 hereafter). The rural–urban differences are noteworthy: rural poverty dropped by a little more than 10 percentage points in period 2, whereas it was around 8.3 percentage points in period 1, 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 1980s, and in the 1990s each of the major states recorded a decline. In the case of urban areas except Andhra Pradesh and Orissa in the 1980s and 1990s, 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 1990s compared to the 1980s: 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 interstate variations of change in the incidence of urban poverty in the reform period.

adoption of dual recall periods (7 days and 30 days) in the 55th round. For details see Deaton and Dreze (2002) and Sundaram (2001).

Table 1. Change in Poverty Incidence in the 1980s and 1990s

States	Rural Poverty		Urban Poverty		All Areas	
	1980s	1990s	1980s	1990s	1980s	1990s
Andhra Pradesh	-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
Madhya Pradesh	-8.26	-3.58	-4.68	-9.94	-7.26	-5.09
Maharashtra	-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
Rajasthan	-7.04	-12.72	-7.45	-10.64	-7.05	-12.13
Tamil Nadu	-21.51	-11.93	-7.19	-17.66	-16.63	-13.91
Uttar Pradesh	-4.17	-11.06	-14.43	-4.5	-6.22	-9.7
West Bengal	-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 1980s covers the pre-reform period between 1983 and 1993/4; the 1990s covers the reform period between 1993/4 and 1999/2000. The change is indicated in terms of the terminal year figure minus the base year figure.

It is assumed that as economic reforms are likely to bring in higher growth, the growth or mean effect is expected to go up in period 2. Though the extent of fall in the incidence of urban poverty in the 1990s has been only marginally higher than that in the 1980s as noted above, the hypothesis of a higher growth or mean effect in period 2 may still be valid. In addition to this, the inequality effect might have fallen in period 2 compared to period 1 if economic reforms aim at generating pro-poor growth, that is, employment generation occurring in the process of economic growth (Kakwani and Pernia 2000). Further, as the coefficient of variation of the change in the incidence of urban poverty rose in the 1990s over the 1980s it can be hypothesized 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 period 1, which brought in a decline in the observed poverty ratio. Even in rural Assam and Haryana, where the observed poverty ratio actually increased in period 1, 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 including 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. This is an interesting feature and needs further analysis, which is outside the scope of this paper, as to why inequality effect turned out to be beneficial in these states and not elsewhere.

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 period 1 (see Table 2).

In the reform period (period 2), 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 reform period, it is interesting to note that the adverse effect of inequality fell in this period compared to the 1980s and became almost negligible. Moreover, despite a rise in the adverse effects of inequality in rural India in period 2 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. This is possibly because growth became pro-poor in these states by generating employment opportunities. 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 the rural population continued to be more than the rise in the incidence of urban poverty caused by the rise in the level of urbanization in the 1990s. However, in terms of magnitude the population shift effect for all areas fell marginally from -0.3 in period 1 to -0.21 in period 2.

Table 2. Decomposition of Change in Poverty between 1983 and 1993/4 (Period 1)

States	Growth			Inequality			Population			Total		
	Rural	Urban	All Areas	Rural	Urban	All Areas	Rural	Urban	All Areas	Rural	Urban	All Areas
Andhra Pradesh	-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
Madhya Pradesh	-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
Rajasthan	-15.77	-4.64	-20.41	-0.12	-0.15	-0.28	-1.4	1.6	0.2	-17.29	-3.2	-20.5
Tamil Nadu	-27.42	-5.2	-32.62	0.28	0.36	0.63	-2.74	2.75	0.01	-29.88	-2.1	-31.98
Uttar Pradesh	-6.78	-6.23	-13.01	-0.38	0.34	-0.04	-1.71	1.65	-0.07	-8.87	-4.25	-13.12
West Bengal	-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
CV	-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: CV is coefficient of variation across the states (excluding all-India).

Table 3. Decomposition of Change in Poverty between 1993/4 and 1999/2000 (Period 2)

States	Growth			Inequality			Population			Total		
	Rural	Urban	All Areas	Rural	Urban	All Areas	Rural	Urban	All Areas	Rural	Urban	All Areas
Andhra Pradesh	-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
Madhya Pradesh	-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
Rajasthan	-35.5	-9.64	-45.14	-0.17	0.65	0.49	-0.22	0.27	0.06	-35.88	-8.71	-44.59
Tamil Nadu	-20.28	-20.36	-40.63	-0.38	0.52	0.14	-4.37	5.1	0.73	-25.03	-14.74	-39.76
Uttar Pradesh	-21.48	-2.16	-23.65	-0.05	-0.09	-0.14	-0.61	0.55	-0.06	-22.15	-1.7	-23.85
West Bengal	-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
CV	-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: CV 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
Andhra Pradesh	11.76	-15.73	-3.96	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
Madhya Pradesh	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
Rajasthan	-19.73	-5	-24.73	-0.05	0.8	0.77	1.18	-1.33	-0.14	-18.59	-5.51	-24.09
Tamil Nadu	7.14	-15.16	-8.01	-0.66	0.16	-0.49	-1.63	2.35	0.72	4.85	-12.64	-7.78
Uttar Pradesh	-14.7	4.07	-10.64	0.33	-0.43	-0.1	1.1	-1.1	0.01	-13.28	2.55	-10.73
West Bengal	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
CV	-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: CV is coefficient of variation across the states (excluding all-India). Change is defined as the effect in period 2 minus the corresponding effect in period 1.

On the whole, the beneficial effect of growth on poverty increased in magnitude in period 2 relative to period 1 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 to 1.63 percent.

Based on Tables 2 and 3 different size classes have been formed representing the growth effects in both periods, and the states are distributed among 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 the magnitude with a negative sign, the higher the beneficial growth effect. Table 5, which corresponds to the rural areas of the states, offers a mixed picture. While states like Andhra Pradesh, Madhya Pradesh, Orissa, Tamil Nadu, and West Bengal 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 Kerala, Orissa, and Punjab moved down from higher size classes in period 1 to lower size classes in period 2 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.

It would be interesting to examine whether states with a higher growth effect particularly in the urban areas in the 1990s over the 1980s 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 1990s relative to the 1980s also experienced a lower population shift effect in the urban areas. The only exception is Tamil Nadu.² In other words, these are the

²Tamil Nadu recorded a massive increase in urban population between the 1991 and 2001 census years possibly due to reclassification of rural areas in 1991 as urban in 2001. As a result there has been a decline in the 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 both rural and urban areas. Also it is unlikely that fertility decline would bring in a fall in population in absolute terms. Rural-to-urban migration also

states where higher growth effects in the reform period slowed the rise in the incidence of urban poverty occurring in the process of urbanization. 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.

Table 5. Cross-tabulation of States in Terms of Growth Effect on Poverty Changes for Two Periods: Rural Areas

Growth Effect (1983-1993/4)	1993/4 – 1999/2000					
	> 0	0 to -10	-10 to -15	-15 to -20	-20 to -25	-25 and above
> 0			Assam			Haryana
0 to -10					Bihar Uttar Pradesh	Punjab
-10 to -15		Madhya Pradesh			Gujarat Maharashtra 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 for Two Periods: Urban Areas

Growth Effect (1983-1993/4)	1993/4-1999/2000					
	> 0	0 to -10	-10 to -15	-15 to -20	-20 to -25	-25 & above
> 0			Andhra Pradesh			
0 to -10	Orissa	Assam Bihar Haryana Madhya Pradesh Maharashtra Rajasthan Uttar Pradesh West Bengal All-India	Karnataka		Tamil Nadu	
-10 to -15		Kerala		Gujarat		
-15 to -20						
-20 to -25				Punjab		
-25 & above						

could not have reduced the rural population in absolute terms. Rapid increase in so-called urban population caused urban poverty to rise.

It has been widely noted that economic growth varies considerably across areas; even within India, states have recorded different growth rates, which do not seem to have any tendency toward 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 economic growth, industrialization is often cited, though from an argumentative point of view any sector can bring about 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 economic growth. Besides, as per Kuznets's (1966) perception of modern economic growth, it is agriculture that 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 similarly as the value added originating from the commodity-producing sector since factor (labor) income and value added are not distinguishable in the case of the tertiary sector. Besides, the concept of value added is not clear as regards various tertiary activities (Bhattacharya and Mitra 1990 and 1997). Hence, it is 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 interspatial variations in industrial productivity are indeed the cause of variations in economic growth too. In this paper it is argued 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.

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 toward 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 hence 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. The paper's 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 level of urbanization across Indian states (Gupta and Mitra 2004 Sachs, Bajpai, and Ramiah 2002). Hence, the present study provides a strong basis to hypothesize that external economies of scale related to degree of urbanization (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 also 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 and in 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 prerequisite 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 latter.

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 level of urbanization defined as the percentage of population living in urban areas. Based on state-specific figures on net domestic product, annual growth rates across states were calculated over the period 1990/1 through 1997/8. It may be noted that each of the variables across states varies over a wide range of values. Sachs, Bajpai, and Ramiah (2002) showed how the growth rates across states diverged in period 2 compared to period 1.

In some of the states like Bihar the per capita net state domestic product has been as low as Rs1073 in 1997/8 (in 1980/1 prices) whereas in some of the industrialized states like Gujarat and Maharashtra, and agriculturally prosperous states like Haryana and Punjab 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 percent per annum whereas Gujarat, Maharashtra, and West Bengal registered a growth rate of around 6.5 percent or more in the 1990s. Orissa is another state with a low per capita income, which recorded a growth rate of 4.6 percent per annum, whereas Uttar Pradesh with almost the same level of per capita income in 1997/8 experienced a growth rate of only 2.6 percent. 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.

Table 7. State-specific Growth Rates, Urban Population, and Level of Industrialization

State	Per Capita NSDP (1997/8) (rupees/month in 1980 prices)	Annual Growth Rate of NSDP in 1980/1 Prices over 1990/1- 1997/8 (%)	Percent Urban (1991)	Percent Urban (2001)	Share of Manufacturing in NSDP (1997/8) in 1980 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.

Sources: For rural-urban distribution of population for India and States/Union Territories see Census of India (2001); for estimates of state domestic product see Central Statistical Organization (2000).

The other two variables that also show wide variability are level of industrialization and urbanization. The share of manufacturing in total net domestic product has been more than 30 percent 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 percent). On the other hand, Bihar, Orissa, and Rajasthan seem to have even less than 15 percent of net state domestic product originating from manufacturing. Keeping pace with the level of industrialization, urbanization also turns out to be high in Gujarat, Karnataka, Maharashtra, and Tamil Nadu. Punjab and Haryana also have around 34 and 29 percent of their population residing in 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 1990s 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 a basis to hypothesize that agglomeration economies play a major role in enhancing total factor productivity growth and economic growth across states.

Having highlighted the importance of the industrial sector it may be worthwhile to mention that despite the limitations of the agriculture sector it has also played a major role in accelerating overall growth in states like West Bengal. The tertiary sector, notwithstanding the limitations associated with the concept of value added originating from this sector, has provided a boost in a big way to the overall growth of the economy. Several new components within the tertiary sector, i.e., information technology and business process outsourcing services, have emerged and contributed to the overall growth of the economy. Similarly the expansion in financial institutions and infrastructure services also needs to be recognized. It would be erroneous to ignore these developments and treat them as unproductive. Since these activities have grown differently in different states in the reform period, divergences in growth are possibly related to the differentials as well.

Notwithstanding the divergences in growth, the convergence in the growth/mean effect on poverty in the reform period is quite evident from Tables 2 and 3. From the decomposition analysis, in the coefficient of variation of the growth/mean effect across states, a perceptible decline seems to have taken place in period 2 compared to period 1. In the rural areas it dropped from 113.64 in the 1980s to 57.84 in the reform period, and in the urban areas the fall was from 92.87 to 79.41 during the same period. This tends to support the 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.

V. CONCLUSION

This paper assesses the impact of economic reforms on poverty using 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 population shift effect. The two time periods are from 1983 to 1993/4 and from 1993/4 to 1999/2000, described as pre-reform and reform periods, respectively, though strictly speaking, reforms were initiated in July 1991. While the growth/mean effect has been dominant and has resulted in a decline in the incidence of poverty in both 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 during the reform period. Even in the urban areas of several states and at the all-India level the adverse inequality effect fell considerably in the reform period compared to the pre-reform period. 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 15 major states and at the all-India level in both

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 the states, and this seems to have enhanced interstate variations in economic growth. Other than the role of agriculture in a few states like West Bengal, the rapid growth of new components of the tertiary sector, such as information technology, business process outsourcing services, financial institutions, and infrastructure services have impacted upon economic growth in varying degrees across states. Besides, economic growth is also 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 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 reform phase compared to its previous period, possibly because growth became pro-poor. The population shift effect, which showed a tendency of raising urban poverty, also fell in magnitude in the reform period compared to the pre-reform period across states. States with greater beneficial growth effects in the reform period relative to the first period also show lower adverse population shift effects (rural–urban migration) in the urban areas, or a relatively slower rise in the incidence of urban poverty due to the population shift effect. Reforms seem to have a close association with the rise in growth effects, indicating that both economic growth and its ability to reduce poverty are achieved in the reform process. A strategy of growth with employment generation would help the poor benefit from economic reforms, enhancing not only the growth effect but also making inequality and population shift effects more beneficial to poverty reduction.

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