POVERTY AND REFORMS IN INDIA

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1.   Introduction

The overarching objective of India's development strategy has always been the eradication of

mass poverty. This objective has been articulated in several development plans, ranging from those

published in the pre-independence era by individuals and organizations to the nine five year plans, and

annual development plans since 1950 (Srinivasan 1999, lecture 3). However actual achievement has

been very modest. In year 1997, five decades after independence, a little over a third of India's nearly

billion population is estimated to be poor according to India's National Sample Survey (Table 1). It is

also clear from the same table that until the late seventies, the national poverty ratio fluctuated with no

significant time trend, between a low of 42.63 percent during April-September 1952 to a high of 62

percent July 1966-June 1967, the second of two successive years of severe drought. Then between

July 1977-June 1978 and July 1990-June 1991, just prior to the introduction of systemic reforms of the

economy following a severe economic crisis, the national poverty ratio declined significantly from 48.36

percent to 35.49 percent. The macroeconomic stabilization measures adopted at the same time as

systemic reforms in July 1991 resulted in the stagnation of real GDP in 1991-92 relative to the previous

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[1]I have drawn extensively on the research of Gaurav Datt and Martin Ravallion of the World
Bank in writing this note.

year. A fall in total agricultural output by two percent, and more importantly of foodgrains by 4.2 percent in the same year because of poor weather coincided with macroeconomic stabilization. The two together certainly contributed to a rise in poverty ratio to 40.93 percent in 1992. Since then poverty ratio has stagnated at about 35 percent.

It is no surprise that prior to the late seventies poverty ratio did not decline. After all, during the three decades 1950-1980, India's GDP limped along at an annual average rate of growth of 3.5 percent while population was growing at 2.2 percent per year. During 1980's India's GDP growth rate accelerated to an average of 5.8 percent per year, a rate that was exceeded by only 9 out of 123 countries (World Bank 1999, Table 11). The growth acceleration was associated with the reduction in poverty ratio noted earlier. GDP growth resumed after 1991-92 the year of stabilization and has averaged at 6.1 percent per year in the 1990's. Again, this growth rate was exceeded in relatively few, viz. 19 out of 137, countries (World Bank 1999, Table 11). Yet, even with systemic reforms since July 1991 and the resumption of GDP growth, there has been no further significant decline in poverty ratio. The purpose of this note is to explore this apparent puzzle.[2] I used the word "apparently" advisedly: after all the relevant comparison is not between trends in poverty before and after reforms, but between the trends after reforms and the counterfactual of what would have been the trends had there been no reforms. Such a counterfactual comparison is possible only with an appropriately specified and estimated model. I have not done any modeling or estimation but engage in a suggestive exercise. This

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[2]In an important contribution Tendulkar (1998) had assessed the impact of reforms on poverty with data until 1993-94. This note uses additional data and complements his analysis in some respects. Our assessments are broadly similar. See also Datt (1999) and Lal (1998).

important caveat has to be kept in mind in reading what follows.

I will first discuss some statistical issues relating to estimates of poverty ratio (Section 2). In Section 3, I look at trends since the mid-seventies, first in poverty in rural and urban areas of India as a whole, and then in rural poverty in two groups of major states--the first group consisting of Punjab, Haryana and the coastal states other than Orissa, the second consisting of Orissa and the interior states. It would seem that since 1977-78 until the reforms both rural and urban poverty ratio in India as a whole, and rural poverty in both groups of states declined. Only in urban areas of India, and in the first group of states, there was continued decline in the post-reform period. I will offer some plausible reasons for this difference. I will also report on the findings from Ravallion and Datt (1999) on the determinants of the trends in poverty and inter-state differences. I conclude this note with some general remarks on the reform process and poverty in Section 4.

2.   Measurement of Poverty: Conceptual and Statistical Issues

It is almost trite to observe that what is meant by poverty and how to measure its incidence, however defined, in any population involve complex conceptual and measurement issues. There is a huge literature on these issues relating to India and this is not the occasion to attempt to summarize this literature. The interested reader might wish to consult Srinivasan and Bardhan (1974) for studies up to 1970's and the papers of Tendulkar and his coauthors cited in Tendulkar (1998) for later studies. I will instead confine myself to the definition of poverty and how its incidence has been measured in India for the benefit of readers unfamiliar with this literature.

Poverty measurement in a systematic way started with the seminal contribution of Dandekar

and Rath (1971). A sort of an "official" poverty line was defined by a group of experts in 1962, although the National Planning Committee of the Indian National Congress, chaired by Jawaharlal Nehru, had already defined one in the late 1930's. The "official" poverty line consumption expenditure, set at Rs. 20 per capita per month at 1960-61 prices for rural areas (and Rs. 25 for urban areas), was deemed adequate to enable an individual to consume enough food to meet minimum energy requirements for maintenance of body weight and for work as well as other needs such as clothing and shelter, but excluding expenditures on health and education, both of which were expected to be provided by the state (Srinivasan and Bardhan 1974, page 13, footnote). Dandekar and Rath (1971) arrived at their poverty line by looking for that level of total consumption expenditure per head at which minimum energy requirements were met.[3] Another expert group appointed in 1993 by the Planning Commission recommended a poverty line of Rs. 49 at 1973-74 rural prices.

Given a consumption poverty line and a distribution of persons according to consumption expenditure, the poverty-ratio is simply that proportion of the population of persons with a consumption expenditure below the poverty line. However the distributional data generated by the National Sample Survey (NSS) of households in India relates to consumption expenditures of households, not persons. Although the expert group of 1962 had explicitly related their poverty line to a household of 5 persons (4 adult consumption units), no attempt has been made to adjust for differences in the age-sex composition of households. The distribution of persons according to the per-capita consumption

[3]Srinivasan and Bardhan (1974) is a useful reference to the origins of the official poverty line, the pioneering 15 year (1961-76) plan to eradicate poverty and other issues such as price deflators and discrepancies between household survey based and national accounts based estimates of consumption. See also Srinivasan and Bardhan (1988).

expenditure of the households of which they are members has always been used as the relevant

distribution for poverty measurement.

In estimating poverty over time and across states clearly the poverty line has to reflect the

differences in prices over time and space. While ideally one would like to construct a price-index

based on the prices faced by, and the consumption patterns of the poor, here again the common

practice has been the use of consumer price-index for agricultural labourers as the deflator to convert

consumption expenditures at current prices to those at 1960-61 prices. The underlying assumption was

that agricultural labourers constituted the majority of the poor. In any case, the weighting pattern for

this price index, with a large weight of 0.78 for food, has not been changed for decades.   There are

reasons to believe that consumption patterns have been changing and even the poor do not spend as

much on food as they once did. The extent and direction of bias arising from not taking into account

these changes in estimated poverty ratio and their trend over time are unknown.

Besides the household survey-based estimates of aggregate consumption expenditure from the

NSS, another estimate based on National Accounts Statistics (NAS) is also available. To the best of

my knowledge, there are no independent estimates of national accounts in India through income,

product and expenditure accounts. The available estimates involve a combination of all three. Without

getting into the details, consumption expenditure in NAS is obtained

> "by commodity flow method from the total value of output, the expenditure incurred by
> industries as intermediate consumption and all final consumption (including exports &
> imports) other than those by households and non-profit institutions are deducted to
> obtain the estimates of private final consumption expenditure" (Government of India
> 1980, p. 79).

There are two important points to be noted about the NAS based estimate. First of all it refers

to private non-corporate sector, that is, it covers the expenditure on current account of resident and non-resident households in the domestic market and non-profit making bodies serving households. As such it is to be expected that NAS estimates of consumption would exceed those of NSS. Second, in the application of commodity flow method total domestic use of any commodity has to be apportioned among consumption, intermediate and investment uses and final consumption of entities other than households has to be accounted for. Serious measurement errors arise in each of these steps. Of course, NSS estimates are also subject to sampling and non-sampling errors, particularly errors due to non-response and biased responses. The duration as well as sample sizes for different rounds of NSS have varied substantially. For example, the duration of the third round was just four months (December 52-March 53), and the sample size was only 2079 households (1361 of them being rural). The duration of the 50th round was a full year (July 93-June 94), and the sample size was 117,354 households (69,206 of them being rural). In 1973-74, a decision was taken to replace annual surveys with quinquennial surveys with a very large sample. After 1986-87, a smaller sample of households has been canvassed in every year between quinquennial survey years. To complicate the issue even further, not all rounds covered a full year thus raising the possibility of seasonality, and because the survey was staggered within each round, the reference period for consumption for all households was not the same. In addition, the reference period for household consumption expenditure varies from one month for most commodities to a year for ceremonies such as marriages. Besides comparing aggregate consumption from NAS and NSS, one could also compare the estimates of consumption of particular commodity groups from the NSS and from production and foreign trade data. Such comparisons have been done periodically (see the paper of Srinivasan, Radhadrishnan and Vaidyanathan in Srinivasan

and Bardhan (1974) for an early discussion).

Two possible estimates of poverty at the All India level can be obtained, one by using NSS data for both the average consumption per capita as well as its distribution among persons and the others by using the average consumption per capita from the NAS together with the distributional shares from the NSS. The latter procedure implicitly adjusts each household's per capita consumption expenditure by the ratio of the higher NAS to NSS mean consumption and, as such, reduces the poverty ratio. If, on the other hand, one were to assume that the higher NAS mean was entirely due to under-reporting of their consumption by non-poor households, then only their consumption would need to be adjusted and poverty ratio will be unaffected. Be that as it may, as long as the difference between the two averages is not too large, and does not vary over time, the level and trends in the two poverty estimates would be similar. The ratio between NSS and NAS based estimates of consumption has however declined significantly since the late eighties, with dramatic effects on poverty estimates based on the implicit adjustment procedure.

Figure 1, which I obtained from my friends in the World Bank, tells the story. If NSS mean consumption is adjusted upwards to NAS mean consumption, estimated poverty declines during the post-reforms era rather than stagnate as in the NSS based estimate. Besides, while production based estimate of foodgrain availability shows an increasing trend, NSS based estimates shows a declining trend during the same period!

I do not wish to imply that necessarily one or the other estimate should be deemed superior. There are valid reasons why the NSS and NAS based aggregate consumption expenditures would differ and these were discussed in some of the papers in Srinivasan and Bardhan (1974). A fresh look

at the issue is needed. But without such a reexamination, it will be hazardous to accept the recent

trends in one or the other estimate as firmly established. However, one cannot deny that using NSS

data both for the distribution and its mean for all periods has the virtue of consistency.

3.   Post-reform Trends in Poverty: Divergence Between Rural and Urban Areas and Among States

Until the reforms of 1991 the downward trends in rural and urban poverty since the mid

seventies were similar, with poverty levels in urban areas being significantly lower. Since 1990, the

trends began to diverge, with urban poverty continuing to decline while rural poverty stagnated (Figure

2). I suggest below that this divergence could be in large part due to the fact that the reform process

has thus far left agriculture and rural areas largely untouched. Indeed this conclusion is reinforced by

the fact that in more urbanized states poverty continues to decline in the post reform period.

Poverty estimates at the level of individual sates are based on NSS data only. Although

domestic product data are available for states, data on state income (or state national product) as well

as their composition in terms of consumption, savings etc. are not available. There is a revealing

divergence in the trends in rural poverty between two groups of states in the post reform period. This is

seen in Figure 3. In the states of Andhra Pradesh, Gujarat, Kanataka, Kerala, Maharashtra, West

Bengal and Punjab, the trends in rural poverty began to diverge from that in the states of Bihar, Madhya

Pradesh, Orissa, Rajasthan and Uttar Pradesh from 1977-78, the year when the downward trend in

poverty in India began. In the first group, poverty continued to decline in the post reform period, albeit

at a slower rate. There was no such decline in the second group.

Not having done a detailed and careful analysis of the data and differences in policies that would be expected to affect the prospects of the poor in each of the states, I can only speculate on the possible reasons for the divergent trends. It is true that the second group of states are poorer and less developed industrially than the first. But if growth convergence hypothesis were to hold, the poorer states ought to grow faster. Cashin and Sahay (1996) did find support for convergence in their analysis of state level domestic product series. Their finding has been disputed.[4] Even if in the poorer states GDP grew faster relative to the richer ones, unless the relation between GDP growth and poverty reduction is similar, one cannot conclude that rate of poverty reduction should be faster as well. I return to this issue below.

Besides their greater poverty, the second group of states, which but for Orissa, have been dubbed BIMARU, the Hindi word for sick, by demographer Ashish Bose by playing on the first few letters of their names, have higher rates of illiteracy (particularly among females). In terms of other social indicators such as rates of infant mortality, school drop-out rates etc., they are poorly placed relative to the first group. They are also more rural and more dependent on agriculture. Except for Punjab, all other states in the first group are coastal while all the states in the second are inland. I suggest that all these factors taken together put the second at a relative disadvantage in exploiting the opportunities created by the reforms. After all, the major reforms related to foreign trade and industry--agriculture was hardly touched directly by the reforms. For example, Kerala with its highly literate population has been the source of emigration to other states and rest of the world (particularly to the

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[4]See Rao et. al. (1997, 1999) and the response of Cashin and Sahay (1997).

Gulf countries) of educated workers. Remittances from such workers seems to have played a major role in reduction of poverty in Kerala. To a lesser extent, this is true in other Southern states such as Tamil Nadu. Also in Kerala and Tamil Nadu, total fertility rates are currently at replacement levels or below, and will soon be in Andhra Pradesh and in the remaining states of the first group in less than a decade. Except for Orissa where the total fertility rate is around 3.3, in all the other states of the second group total fertility is higher than 4.

Datt and Ravallion (1992, 1997, 1998a, 1998b) and Ravallion and Datt (1996a, 1996b, 1999) have analyzed the determinants of and factors (including policy instruments) that influence the trends in poverty. Before drawing on their most recent (1999) paper, let me summarize their findings in earlier papers as cited in the World Bank (1997) from which I reproduce Tables 2, 3 and 4. First, poverty ratio goes down by <u>one percent</u> for every <u>one percent</u> increase in net domestic product per capita. Second, a decomposition of the changes in poverty ratio into a group component (i.e. growth in mean consumption) and a redistribution component shows that nearly 87 percent of the observed decline in poverty ratio was accounted by the growth component. It is for this reason that I have not made any reference to, nor will I discuss below, policies and programmes that are explicitly designated as poverty alleviation oriented. There is a huge literature on their cost-effectiveness in reaching the poor (Gaiha et. al. 1999, Srinivasan 1999, Lecture 3). Third, the sectoral composition of growth matters in that rural economic growth contributes far more to poverty reduction than urban economic growth. Fourth, initial conditions relating to human resources and infrastructural development accounted for a sizeable share of the differences between states in reducing rural poverty.

In arriving at their fourth finding, Datt and Ravallion (1998a) had postulated that the effect of

initial conditions and growth on poverty were additively separable. In such a specification, growth has the same effect on poverty whatever be the initial conditions. In their most recent paper (Ravallion and Datt 1999) they also allow "for multiplicative interactions of the sectoral composition of growth with initial conditions in determining the evolution of state level poverty" (p. 3). I reproduce Tables 5 and 6 from their paper of 1999. The regression estimates of Table 5 allow for interstate differences in the response of poverty head-count ratio to non-farm output (NFP) (it turned out that interstate differences in the response to farm output were not statistically significant). The elasticity (which equals twice the regression coefficient since the explanatory variable is the sum of current and lagged farm output) ranges in absolute value between 0.254 for Bihar and 0.666 in Orissa for the second group of states, whereas in the first group of states it ranges between 0.406 for Maharashtra and 1.228 for West Bengal. Thus the same rate of growth would reduce poverty to a greater extent in most states of the first group than in the second.

The interaction effects between initial conditions and non-farm output seen in Table 6 are interesting. As the authors point out,

> "Broadly speaking, our results can be interpreted as indicating that non-farm economic growth was less effective in reducing poverty in states with "poor" initial conditions in terms of rural development (in both absolute terms and relative to urban areas) and human resources. Low farm productivity, low rural living standards relative to urban areas and poor basic education all inhibited the prospects of the poor participating in growth of the non-farm sector.
>
> Rural and human resource development appear to be strongly synergistic with poverty reduction though an expanding non-farm economy. Amongst the initial conditions we have found to matter significantly to prospects for pro-poor growth, the role played by initial literacy is particularly notable. For example, more than half of the difference between the elasticity of the head count index of poverty to non-farm output for Bihar (the state with lowest elasticity) and Kerala (the highest) is attributable to the latter's substantially higher initial literacy rate" (Ravallion and Datt 1999, p. 20).

The implication of the disaggregated analysis of Ravallion and Datt (1999) for poverty alleviation effects of reform seem to me to be as follows. Given that the thrust of reforms thus far has been to liberalize foreign trade in non-agricultural commodities and removal of industrial licensing that constrained capacity creation, the effect of reforms on poverty has to come from its effect primarily on non-farm output. To the extent this effect is diluted by poor initial conditions in the populous interior states in which a large majority of India's rural poor live, one can only see relatively modest reductions in poverty from reforms. And this is consistent in what we observe in the aggregate data on poverty.

4.   Conclusion

Nearly four decades ago, a remarkable fifteen year plan (1961-1976) was prepared in the Perspective Planning Division of the Planning Commission under the leadership of the late Pitambar Pant with the objective of providing what it called a "minimum level of living" for the entire Indian population. It was based on two basic assumptions. The first was about the limited role of redistribution of income and about the primacy of rapid growth for achieving its set objective. After surveying available data on income distribution, it concluded

> "It is difficult to say a priori what degree of inequality is necessary for growth; but a comparison of the distribution of incomes in different countries is suggestive. It shows that in countries at very different levels of development and with varying socio-political environments, the distribution of incomes follows a remarkably similar pattern, especially in respect of the proportion of incomes earned by the lowest three or four deciles of the population.
> If this hypothesis can be sustained, the income of the poorest segments as a result of spontaneous economic development may be expected to increase in more or less the same proportion as total income in any country. The attainment of a specified level of minimum income within a given period then becomes purely a function of the rate of development" (Srinivasan and Bardhan 1974, p. 14).

The second was the need for a social safety net for the section of the population that was loosely integrated with growing sectors of the economy. This group was estimated as constituting 20 percent of the population. Because of their idiosyncratic circumstances, economic growth alone would not be adequate to alleviate their poverty. For them it advocated specific steps (presumably transfers) to deal with their problems. A target of an annual rate of growth of GDP of seven percent was set so that the 80 percent of the population well-integrated with income generation processes of the economy as well as the 20 percent whose poverty had to be addressed by special programmes, will all have a "minimum level of living" by the end of the fifteen year period. Unfortunately the Indian GDP has not grown at seven percent per year in a sustained fashion since then. I am recalling this paper only to make the point that India's failure to achieve rapid growth is the root cause of the failure to eliminate poverty.

Indeed, the association between rapid growth and poverty alleviation is clear since the 1980's . However the growth of the 1980's was not due to any systemic reforms of the development strategy pursued since the 1950's. This strategy promoted an inward-oriented, public-sector dominated and controlled economy. Although there were some significant relaxation of controls on industrial investment and an increase in infrastructural investment by the public sector in the eighties, there was also a significant increase in import tariffs. The acceleration in growth was largely due to growth in the domestic demand following the abandonment of the macroeconomic prudence of the earlier three decades and the adoption of an expansionary fiscal policy. This reckless macroeconomic expansionism with no fundamental reform of severe microeconomic distortions led to growing fiscal deficits that were financed by increasingly costly domestic and external debt. Clearly the fiscal situation was

unsustainable and inexorably led to macroeconomic and balance of payments crisis of 1991 after the gulf war broke out and the price of imported oil went up.

It is possible that the crisis would have been met with draconian macroeconomic measures including further restriction of imports and subsidization of exports as well as borrowing from the IMF had it not been for two other significant factors. The first was the collapse of the Soviet Union which had been India's staunch ally in political, economic and defence matters. The swift collapse of the centrally planned Soviet economy raised doubts about the wisdom of central planning as a means of economic development and management. The second factor was the rapid growth of East Asia, in particular of China since its opening in 1978, could no longer be dismissed as irrelevant to India. Indeed there was a real fear of being left behind further and further by China. Thus when Prime Minister Narasimha Rao and his outstanding Finance Minister Dr. Manmohan Singh took office in the middle of 1991, they decided that systemic and thorough going reforms had to be instituted. In other words, not only stabilization but also systemic reforms were unavoidable given the economic and external situation India faced in 1991. The question was not whether reforms could have been avoided but one of ensuring that the poor share in the benefits and better insulated from the costs of reforms.

It is eight years since the initiation of reforms in July 1991 and, as such, there has been adequate time for the possible short-run adverse effects on the poor of stabilization to have been offset and the possible medium to long-run beneficial effects to be seen. But the reforms have made substantial progress in some, but not all, sectors of the economy. Quantitative restrictions on foreign trade have largely been eliminated except for some consumer goods and agricultural products; tariffs have been reduced substantially, although compared to other developing countries Indian tariffs are still

high. Investment licensing has been abolished except in a few industries important from perspectives of

environmental protection, regional development and national security. Financial sector is no longer as

repressed as it was prior to 1991. The dominance of the public sector banks is slowly being reduced

with the entry of private banks, domestic and foreign. But there is still a long way to go before it can be

said that it is no longer repressed and sound.

It will take me too far from the topic of this note to delve further into the progress or lack

thereof in the reform process. I have done so elsewhere (Srinivasan 1999). Given that poverty is

largely a rural phenomenon (more than 80 percent of India's poor live in rural areas) and that casual

labourers (in agriculture and in non-farm activities), and marginal farmers constitute a large part of the

poor, for reform to have a substantial impact on poverty, the growth it generates has to be labour-

intensive and it has to extend to rural areas. Unfortunately the reform process thus far has not

adequately met these desiderata.

First, the reform process has hardly touched agriculture. Not only Indian agriculture is largely

insulated from world markets but also there are restrictions on domestic trade in agricultural

commodities such as monopoly procurement by the government in Maharashtra and export restriction

on cotton, restrictions on inter-state (and even interdistrict) movement of certain commodities on private

account and so on. Although it might seem incredible to non-Indians, exports of onions are politically

determined!

Second, there have been no reforms of the labour market regulations. A small part (less than

10 percent) of the labour force that is employed in organized manufacturing and the public sector

enjoys job security, relatively high wages and other perquisites. The rest of the labour force has no

protection. Besides, failing firms are not allowed to go bankrupt but are often taken over by the public

sector so as to protect employees. The high cost of hiring and firing meant that the employment

elasticity of growth in output of organized manufacturing firms was virtually zero. Only growth in

employment in the organized sector was in the public sector in the eighties.

Third, there is a crippling regulation that reserves or certain commodities for production by the

small scale industries. This has led to inefficient and sub-optimal capacity of firms. Moreover, certain

dynamic export commodities such as garments, leather products, shoes and toys are reserved for the

small scale sector. Ironically several of the items on the reserved list are freely importable after the

reforms so that foreign large scale producers can compete with domestic small scale producers of these

products, while domestic large scale producers are prevented from doing so. There is clear evidence

that China and other producers of labour intensive manufactures have out performed India in gaining

export shares in part because the small industry reservation policy has prevented potentially competitive

large scale Indian producers from entering the market.

Fourth, although the foreign trade and investment licensing reforms created an enabling

environment, exploitation of the opportunities opened up in a way that benefits the poor would depend

also on other conditions such as the availability of adequate power, efficient and inexpensive transport

and telecommunications (particularly rural roads and telephones, and improvements in the educational

attainment of the labour force. As the study of Ravallion and Datt (1999) suggests, the poverty

alleviation potential of the growth induced by reforms would have been much higher had these factors

been more favourable than they have.

Let me conclude. Although there is some evidence that the decline in poverty has slowed down

after the initiation of reforms of 1991, since the reforms were unavoidable, the real question is how to make the growth induced by reforms more effective in alleviating poverty. The answer is also clear: with extension of reforms to the agricultural and rural sector, introduction of reforms to labour and product markets so that growth is more labour intensive, and improvement in the quantity and quality of infrastructural services as well as the educational attainment of the labour force, in short by extending and deepening the reforms, the decline in poverty would be considerably accelerated.

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Table 1:   Poverty in India 1951-1997 (with correction for CPIAL)

(Poverty line = Rs. 49 per capita per month at Oct 73 - Jun 74 rural prices)

NSS Round	Survey Period	Headcount Index			Poverty Gap Index			Squared Poverty Gap Index		
		Rural	Urban	National	Rural	Urban	National	Rural	Urban	National
3	Aug 51-Nov 52	47.37	35.46	45.31	16.05	11.14	15.20	7.53	4.82	7.06
4	Apr 52-Sep 52	43.87	36.71	42.63	14.64	10.91	13.99	8.71	4.41	6.31
5	Dec 52-Mar 53	48.21	40.14	46.80	16.23	13.25	15.76	7.56	5.96	7.28
6	May 53-Sep 53	54.13	42.77	52.15	19.03	13.83	18.12	9.12	6.29	8.62
7	Oct 53-Mar 54	61.29	49.92	59.30	21.95	17.24	21.12	10.26	7.74	9.82
8	Jul 54-Mar 55	64.24	46.19	61.07	25.04	15.76	23.41	12.50	7.02	11.54
9	May 55-Nov 55	51.83	43.92	50.44	18.44	14.65	17.78	8.60	5.40	8.38
10	Dec 55-May 56	48.34	43.15	47.43	15.55	13.34	15.24	6.74	5.41	6.48
11	Aug 56-Feb 57	58.86	51.45	57.55	19.45	18.16	19.22	8.50	8.51	8.50
12	Mar 57-Aug 57	62.11	48.88	59.77	21.69	16.31	20.73	10.01	7.25	9.52
13	Sep 57-May 58	55.16	47.75	53.84	19.01	15.95	18.47	8.78	7.00	8.46
14	Jul 58-Jun 59	53.26	44.76	51.75	17.74	13.73	17.03	7.88	5.87	7.52
15	Jul 59-Jun 60	50.89	49.17	50.58	15.29	15.83	15.39	6.13	6.75	6.24
16	Jul 60-Aug 61	45.40	44.65	45.27	13.60	13.84	13.64	5.53	5.83	5.59
17	Sep 61-Jul 62	47.20	43.55	46.54	13.60	13.79	13.64	5.31	6.05	5.45
18	Feb 63-Jan 64	48.53	44.83	47.85	13.58	13.29	13.77	5.49	5.17	5.43
19	Jul 64-Jun 65	53.66	48.78	52.75	16.08	15.24	15.93	6.60	6.38	6.56
20	Jul 65-Jun 66	57.60	52.90	56.71	17.97	16.82	17.75	7.60	6.98	7.49
21	Jul 66-Jun 67	64.30	52.24	62.00	22.01	16.81	21.02	10.01	7.19	9.47
22	Jul 67-Jun 68	63.67	52.91	61.60	21.60	16.93	20.66	9.85	7.22	9.35
23	Jul 68-Jun 69	59.00	49.29	57.11	18.96	15.54	18.29	8.17	6.54	7.85
24	Jul 69-Jun 70	57.61	47.16	55.56	18.24	14.32	17.47	7.73	5.86	7.36
25	Jul 70-Jun 71	54.84	44.98	52.88	16.55	13.35	15.91	6.60	5.35	6.51
27	Oct 72-Sep 73	55.36	45.67	53.37	17.35	13.46	16.55	7.33	5.28	6.90
28	Oct 73-Jun 74	55.72	47.96	54.10	17.18	13.60	16.43	7.13	5.22	6.73
32	Jul 77-Jun 78	50.60	40.50	48.36	15.03	11.69	14.28	6.06	4.53	5.72
38	Jan 83-Dec 83	45.31	35.65	43.00	12.65	9.52	11.90	4.84	3.56	4.53
42	Jul 86-Jun 87	38.81	34.29	37.69	10.01	9.10	9.79	3.70	3.40	3.63
43	Jul 87-Jun 88	39.23	36.20	38.47	9.28	9.12	9.24	2.98	3.06	3.00
44	Jul 88-Jun 89	39.06	36.60	38.44	9.50	9.64	9.51	3.29	3.29	3.29
45	Jul 89-Jun 90	34.30	33.40	34.07	7.80	8.51	7.98	2.58	3.04	2.69
46	Jul 90-Jun 91	36.43	32.76	35.49	8.64	8.51	8.61	2.93	3.12	2.98
47	Jul 91-Dec 91	37.42	33.23	36.34	8.29	8.24	8.28	2.68	2.90	2.74
48	Jan 92-Dec 92	43.47	33.73	40.93	10.88	8.82	10.35	3.81	3.19	3.65
50	Jul 93-Jun 94	36.66	30.51	35.04	8.39	7.41	8.13	2.79	2.42	2.69
51	Jul 94-Jun 95	39.75	33.50	38.40	8.89	8.38	..	2.90	2.80	
52	Jul 95-Jun 96	37.46	28.04	35.00	8.31	6.78	..	2.64	2.22	
53	Jan 97-Dec 97	35.69	29.99	34.40	8.39	7.77	..	2.83	2.73	

Note: All poverty measures are expressed as percentage

Source: Datt, 1997 and 1999

Index	Percentage change in the poverty measure attributable to a 10 percent increase in mean net domestic product
Table 2 : How Responsive is Poverty to Economic Growth in India?	
Headcount	-9.9
Poverty Gap	-14.9
Squared Poverty Gap	-18.9

Table 3: Growth-redistribution decomposition of changes in poverty, 1951-1994

Poverty measure	Units	Sources of change in poverty		Total
		Growth component	Redistribution component	change during 1951-55 and 1993-94
Headcount index	(%age points)	-14.87	-2.25	-17.11
	(percent)	86.87	13.13	100.00
Poverty gap index	(%age points)	-6.34	-3.65	-10.00
	(percent)	63.44	36.56	100.00
Squared poverty gap index	(%age points)	-3.40	-2.53	-5.93
	(percent)	57.39	42.61	100.00

Note: The Table shows the decomposition of the cumulative change in poverty between May-September 1953 (NSS round 6) and 1993-94, and the cumulative contributions of the components up to 1993-94. We selected NSS round 6 as the reference date for the first decomposition in the cumulative series, since the poverty measures for this round reasonably approximated the average poverty measures for 1951-55. The decomposition numbers can be interpreted broadly as the cumulative change in poverty (and its components) since the mid-point of the period 1951-55.

Source: Datt, 1997.

Table 4: Sectoral decomposition of changes in poverty, 1951-1994

Poverty measure	Units	Sources of change in poverty				Total
		Change in rural poverty	Change in urban poverty	Inter-sectoral population shift	Covariance term	change since 1951-55
Headcount index	(%age points)	-13.95	-3.01	-0.69	0.02	-17.62
	(percent)	79.13	17.06	3.93	-0.12	100.00
Poverty gap index	(%age points)	-8.84	-1.53	-0.23	0.02	-10.57
	(percent)	83.59	14.46	2.15	-0.20	100.00
Squared poverty gap index	(%age points)	-5.23	-0.85	-0.10	0.01	-6.16
	(percent)	84.78	13.73	1.70	-0.20	100.00

Note: The Table shows the decomposition of the cumulative change in poverty between 1951-55 and 1993-94, and the cumulative contributions of the components up to 1993-94.

Source: Datt, 1997.

Table 5 : Regressions for the state poverty measures allowing for inter-state differences in elasticities to non-farm output

Variable	Headcount index (%)	Poverty gap index (%)	Squared poverty gap index (x100)
Real agricultural output per hectare of net sown area: current + lagged (*YLD*)	-0.104 (4.44)	-0.191 (5.13)	-0.254 (5.01)
Real per capita state development expenditure: lagged (*GOV*)	-0.140 (2.55)	-0.239 (2.75)	-0.336 (2.83)
Real non-agricultural output per person: current + lagged (*NFP*)			
Andhra Pradesh	-0.288 (8.72)	-0.422 (8.09)	-0.521 (7.29)
Assam	-0.196 (4.92)	-0.254 (4.03)	-0.307 (3.56)
Bihar	-0.127 (2.50)	-0.332 (4.14)	-0.497 (4.53)
Gujarat	-0.282 (6.79)	-0.441 (6.72)	-0.546 (6.08)
Karnataka	-0.277 (7.13)	-0.406 (6.61)	-0.503 (5.98)
Kerala	-0.614 (14.66)	-0.976 (14.75)	-1.234 (13.62)
Madhya Pradesh	-0.147 (4.31)	-0.252 (4.71)	-0.332 (4.52)
Maharashtra	-0.203 (5.24)	-0.270 (4.42)	-0.296 (3.53)
Orissa	-0.333 (8.96)	-0.517 (8.83)	-0.671 (8.37)
Punjab and Haryana	-0.300 (9.17)	-0.407 (7.89)	-0.480 (6.79)
Rajasthan	-0.332 (7.23)	-0.488 (6.73)	-0.598 (6.03)
Tamil Nadu	-0.273 (7.77)	-0.391 (7.04)	-0.470 (6.20)
Uttar Pradesh	-0.249 (5.96)	-0.354 (5.36)	-0.437 (4.83)
West Bengal	-0.614 (11.39)	-0.932 (10.95)	-1.198 (10.27)
Jammu & Kashmir	-0.165 (4.99)	-0.209 (4.00)	-0.243 (3.41)
Inflation rate (*INF*)	0.432 (5.29)	0.609 (4.72)	0.732 (4.15)
Time trend	0.016 (6.18)	0.026 (6.23)	0.034 (5.94)
Root mean square error	0.0950	0.1500	0.2054
R^2	0.916	0.917	0.909
Test for equality of non-agricultural growth elasticities across all states: $F_{(14,238)}$ with p-value in ( )	15.29 (0.00)	15.19 (0.00)	14.84 (0.00)

Note: Absolute t-ratios in parentheses. All variables are measured in natural logarithms. A positive (negative) sign indicates that the variable contributes to a higher (lower) rate of increase in the poverty measure. The estimated model also included state-specific intercept effects, not reported in the Table. The number of observations used in the estimation is 272.

Table 6: Explaining inter-state differences in the elasticity of poverty to non-farm output

	Headcount index		Poverty gap index		Squared poverty gap index	
Real agricultural output per hectare of net sown area: current + lagged (YLD)	-0.121 (4.60)	-0.126 (4.85)	-0.214 (5.12)	-0.222 (5.37)	-0.283 (4.97)	-0.293 (5.19)
Real per capita state development expenditure: lagged (GOV)	-0.043 (0.72)	-0.076 (1.38)	-0.125 (1.33)	-0.171 (1.95)	-0.206 (1.60)	-0.263 (2.20)
Real non-agricultural output per person: current + lagged (NFP)	0.758 (3.15)	0.822 (4.67)	1.317 (3.45)	1.265 (1.95)	1.835 (3.52)	1.638 (4.29)
NFP * initial female literacy rate (FLIT)	-0.165 (6.00)	-0.151 (8.15)	-0.256 (5.85)	-0.231 (4.52)	-0.313 (5.24)	-0.282 (7.02)
NFP * initial urbanization (URB)	-0.084 (3.72)	-0.089 (4.18)	-0.140 (3.91)	-0.148 (4.36)	-0.185 (3.80)	-0.193 (4.17)
NFP * initial urban-rural income disparity (CDIP)	0.293 (3.55)	0.325 (4.46)	0.511 (3.89)	0.527 (4.55)	0.692 (3.87)	0.691 (4.37)
NFP * initial irrigation rate (IRR)	-0.010 (0.77)	—	0.009 (0.40)	—	0.028 (0.86)	—
NFP * initial percent of rural landless households (LLESS)	-0.020 (0.82)	—	0.041 (1.05)	—	0.060 (1.14)	—
NFP * initial yield per hectare (YLD)	-0.031 (2.04)	-0.039 (3.70)	-0.063 (2.60)	-0.060 (3.56)	-0.097 (2.93)	-0.081 (3.54)
NFP * initial per capita non-agricultural output (NFP)	-0.011 (0.54)	—	-0.022 (0.71)	—	-0.034 (0.79)	—
NFP * initial per capita state development exp. (GOV)	0.033 (0.83)	—	0.067 (1.05)	—	0.093 (1.07)	—
Inflation rate (INF)	0.380 (4.10)	0.405 (4.45)	0.574 (3.90)	0.613 (4.24)	0.709 (3.52)	0.761 (3.86)
Time trend	0.011 (3.85)	0.012 (4.53)	0.018 (4.06)	0.020 (4.56)	0.024 (3.95)	0.024 (4.36)
Root mean squared error	0.1093	0.1094	0.1738	0.1738	0.2369	0.2370
R^2	0.887	0.885	0.886	0.884	0.876	0.874
Test for joint significance of omitted variables: $F_{(4,219)}$ with p-value in ( )		1.08 (0.37)		1.00 (0.41)		1.06 (0.38)

Note: Absolute t-ratios in parentheses; 272 observations. All variables are measured in natural logarithms. A positive (negative) sign indicates that the variable contributes to a higher (lower) rate of increase in the poverty measure. The regressions also included state-specific intercepts.

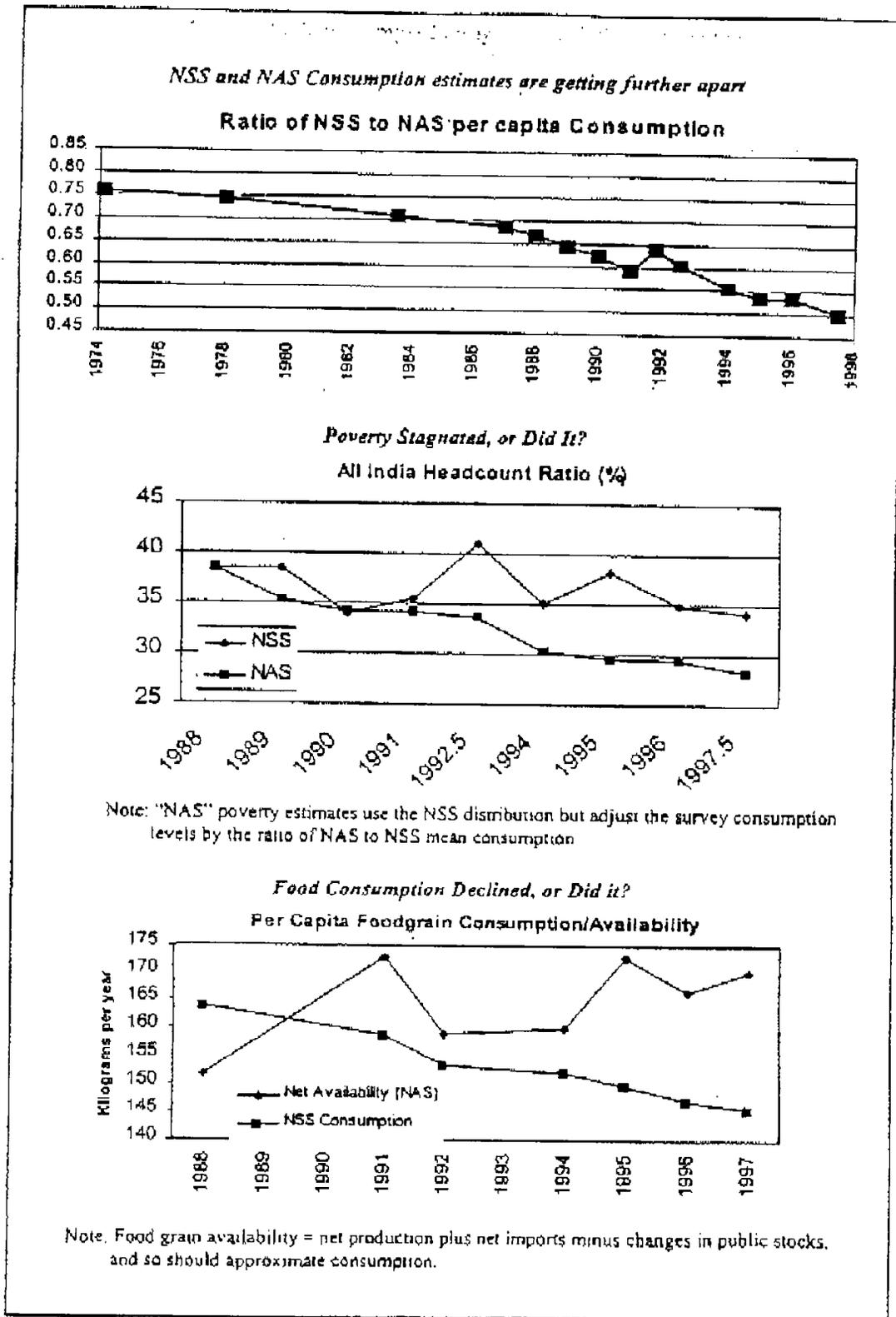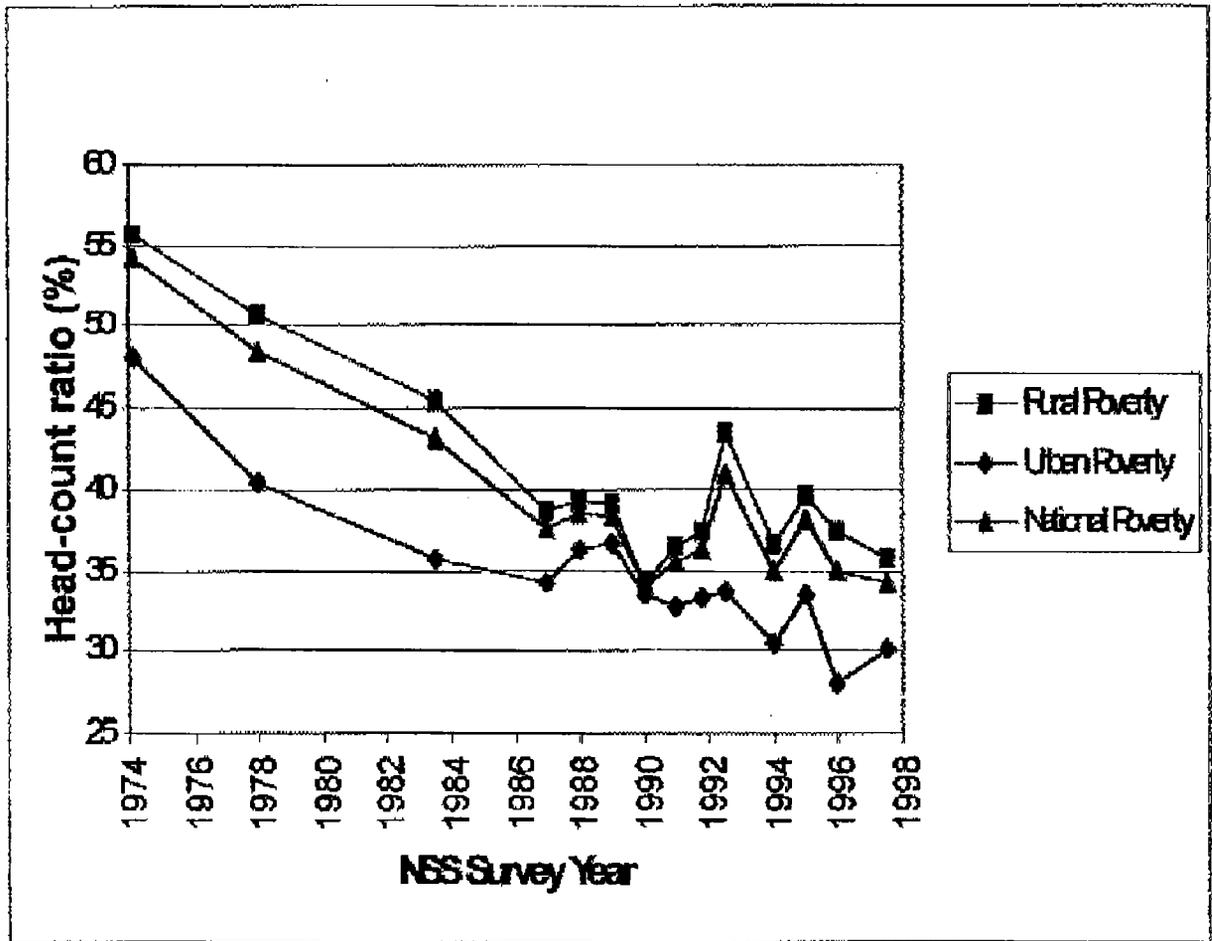Figure 1:   National Sample Survey (NSS) versus National Accounts (NAS)

NSS and NAS Consumption estimates are getting further apart

Ratio of NSS to NAS per capita Consumption

Poverty Stagnated, or Did It?

All India Headcount Ratio (%)

Note: "NAS" poverty estimates use the NSS distribution but adjust the survey consumption levels by the ratio of NAS to NSS mean consumption

Food Consumption Declined, or Did it?

Per Capita Foodgrain Consumption/Availability

Note. Food grain availability = net production plus net imports minus changes in public stocks, and so should approximate consumption.

Figure 2: Poverty in India, 1973/74-1997: National, Rural and Urban

Note: The markers in the figure correspond to the mid-point of the NSS survey period, and the years on the horizontal axis are calendar years, so 1974.0 is January 1974, for example.
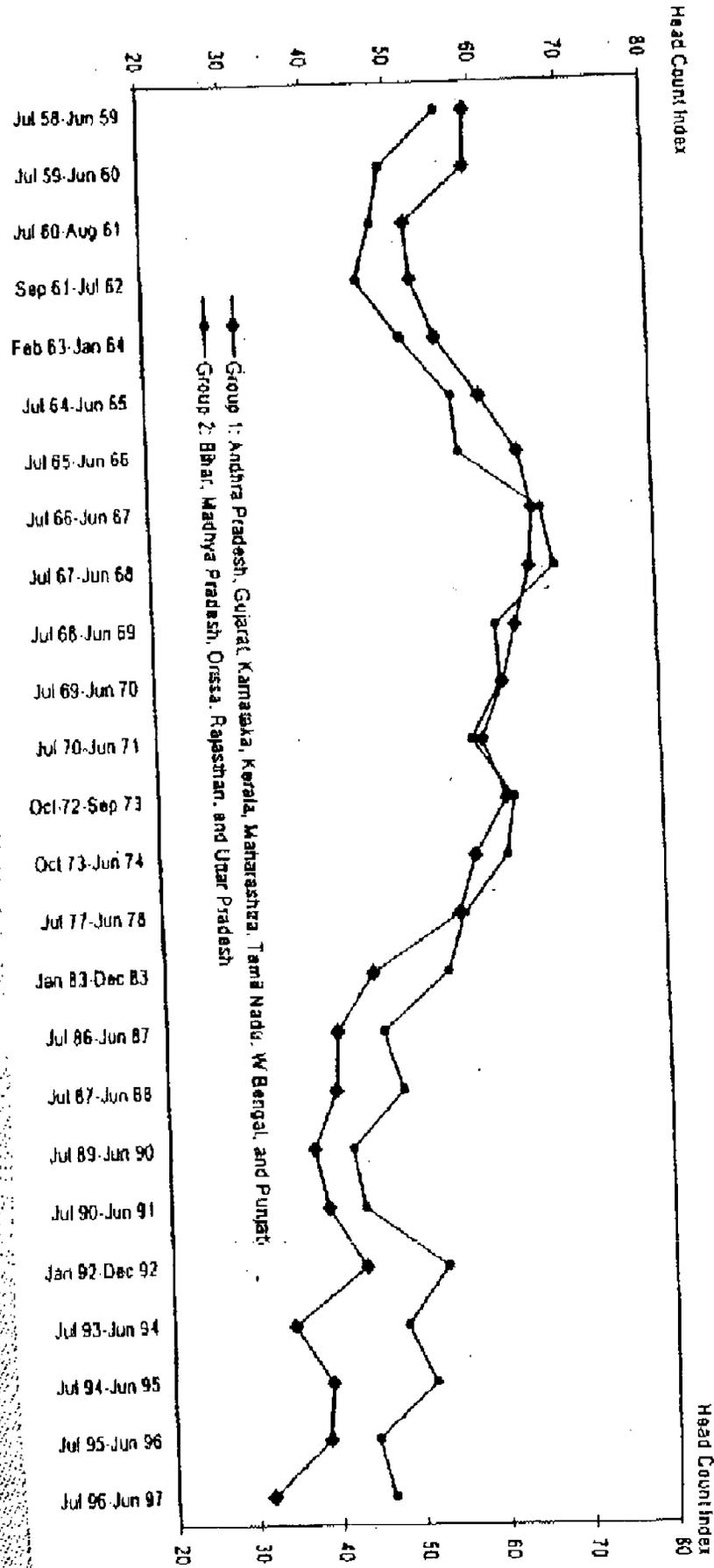Source: Based on Datt (1999).

Figure 3: Head Count Rates (Rural India)