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State Specific Urban Consumer Price Differentials Relative to All-India for Middle Fractiles and Total Population : 1961—1983

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ABSTRACT

A number of attempts have so far been made to construct state-specific consumer price indices relative to the entire country. However, none of these has been able to exhaust the entire consumption basket. Nor do the constructed indices relate to various fractile income/expenditure groups of the urban population. The present study attempts to overcome these shortcomings using two alternative price data sets—one consisting of prices based on market enquiries and the other consisting mainly of the NSS derived prices. The study covers seventeen states/union territories for four years, 1961-62, 1970-71, 1973-74 and 1983.

1. INTRODUCTION

In a large country, with a federal set up, the need and importance of the state-specific consumer price indices (relative to all-India) can hardly be over-emphasized. Such indices play a vital role in facilitating meaningful comparisons, in real terms, of the average level of living among various states. Such indices for various fractile groups of the population are useful in (*a*) carrying out comparison among states in terms of price-adjusted relative disparities in the levels of living, and (*b*) determining the state-specific poverty norms from the exogenously specified all-India poverty norm and consequently in estimating the state-specific poverty incidence.

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The construction of such indices has been attempted in the past. For instance, Maitra (1959), Rath (1973) and Chatterjee and Bhattacharya (1974) constructed these indices for total rural population whereas Bhattacharya, Joshi and Roy Choudhary (1980) for both the total rural and urban population. Chatterjee and Bhattacharya, in addition, also computed these indices separately for five quintile groups of the rural population.

Maitra constructed these indices (relative to all-India) for 1952 for nine class 'A' states of India that existed at that time. The weights used related to fourteen item groups, which covered 70 per cent of the household budget and belonged only to the food and fuel and light groups. These weights were based on the National Sample Survey (NSS) consumption pattern during the 4th round (April-September 1952). However, the average prices of the item groups related to 1957 as they were worked out from the retail prices of individual items collected in 1957 by the NSS price enquiries (published in weekly price bulletins released by the Indian Statistical Institute, Calcutta).

Rath made use of the NSS 17th round (September 1961 to August 1962) household consumption data, both in value and quantity terms, relating to 43 individual items covering about 75 per cent of the household budget, for estimating the average prices of these items as well as the weighting diagrams for total rural population of different states. In view of some of the items not appearing at all in the household budgets of a number of states, Rath treated six item groups as six single items-one item for each group-thereby reducing the number of included items to about 25 only. He thus constructed state-specific price indices relative to every other state and then took simple average of these indices in order to depict price differential of a state relative to all states. Obviously, an indirectly derived average state specific price index of this type will not be equivalent to the corresponding state-specific index relative to all-India, independently and directly constructed.

Chatterjee and Bhattacharya utilised the unpublished household budget data collected in the 18th round (February 1963—January 1964) of the NSS for estimating the prices and weights for 56 items included in the construction of the state-specific indices relative to every other state as well as all-India. These 56 items covered about 88 per cent of the total household budget. However, many item groups under the miscellaneous goods and services, such as education, recreation and amusement, transport and communications, medical care, personal care and effects and durables were left out.

Bhattacharaya, Joshi and Roy Choudhary constructed similar indices for 1973-74, making use of the unpublished NSS household consumption data for the 28th round (October 1973—June 1974). Their indices were based on 94 items of consumption, covering 85 and 75 per cent of the house-

hold budgets for the rural and the urban areas, respectively. This study had also left out the miscellaneous goods and services.

In any of the studies mentioned above, the items/item groups covered by them did not exhaust the entire consumption basket. Furthermore, no attempt had been made in these earlier studies to construct similar indices for various fractile groups of the urban population. The present study, while attempting to meet these shortcomings, constructs the state-specific consumer price indices relative to all-India (hereafter also referred as state-specific relative indices or simply as relative indices), for the total as well as the pre-selected middle range of the urban population, using two alternative price data sets, one consisting of prices from the market enquiries and the other mainly of the NSS derived prices. These state-specific relative indices have been worked out first for twelve composite item groups of the household budget, and then for major item groups, viz., all food, all non-food and general (all food plus all non-food) and for seventeen states/union territories in the four NSS survey years[1], 1961-62, 1970-71, 1973-74 and 1983.

Section 2 describes the data sources and their limitations and the methodology employed in the construction of the price indices. In section 3, we present and compare the different sets of inter-state relative indices, for the total and the pre-selected middle range of the urban population, obtained by using Laspeyre's, Paasche's and Fisher's (denoted by L, P and F respectively) index formulae, and using alternative price data sets consisting of market prices and NSS prices. A comparison of our updated indices for 1973-74, with somewhat similar indices constructed by others, is undertaken in section 4. The updation of our indices to 1970-71 and 1983 is attempted in Section 5 and these indices are analysed in relation to the indices for 1961-62. Some concluding remarks are made in section 6.

2. Data Sources and Their Limitations

The present study has constructed, at the item group level as well as for all item groups together (general), two sets of state-specific relative indices in 1961-62, one for the entire urban population and the other for the middle range of the urban population. The latter set of indices, i.e., those relating to the middle fractiles of population, have been constructed to facilitate better and conceptually more appropriate calculations of the incidence of poverty. Currently available poverty studies indicate that no matter what

[1]The corresponding NSS survey periods are September 1961—August 1962, July 1970—June 1971, October 1973—June 1974 and January—December 1983. They refer to the NSS round 17th, 25th, 28th and 38th and will hereafter be referred as 1961-62, 1970-71, 1973-74 and 1983, respectively.

price deflator is used for updating the base year poverty line, the four top deciles (approximately) of the urban population are always found above the poverty line and the two bottom deciles (approximately) are always under the poverty line. The broad band in the middle, comprising of about 35 per cent of the urban population, constitutes the swing group. Large chunks of this group either come into poverty or get excluded from poverty depending on the price, production and employment conditions in a particular year. As argued elsewhere (Minhas *et. al.*, 1987) the consumption pattern of this middle band of households should provide the relevant weighting diagram for the construction of the appropriate consumer price indices for the estimation of poverty. The appropriateness of the use of such state-specific relative indices for the middle urban populations has been demonstrated in a related study (Minhas *et. al.*, 1989) of the incidence of urban poverty. The state-specific middle range of the urban population in 1961-62 was taken to be consisting of those persons whose monthly per capita total expenditure (MPCTE) belonged to MPCTE size clase from Rs. 15 to Rs. 24. This choice was governed by two criteria that (*a*) at all-India level, these were consistent with middle range of the urban population in 1970-71, adopted in our earlier study (Minhas et. al., 1988) represented by MPCTE size class from Rs. 28 to Rs. 43, and (*b*) they contained the respective state-specific poverty lines.[2] Thus defined middle urban population, at the all-India level, covered from 20th to 52nd percentile of the population arranged in ascending order of MPCTE. At the state level, the fractile groups corresponding to the middle urban populations for seven states were approximately the same as for all-India. These were Bihar (23-55 percentile), J&K (19-58), Madhya Pradesh (22-57), Orissa (22-52), Punjab (27-51), Rajasthan (16-51), and Tamil Nadu (18-54 percentile). Four states had somewhat higher fractile groups than all-India, viz., Andhra Pradesh (25-62), Karnataka (26-62), Kerala (34-59) and Uttar Pradesh (32-63 percentile). The remaining five states, on the other hand,

[2]On using either of the all-India general consumer price index values 185.58 and 190.95 for 1970-71 with 1960 = 100 and relating to the total and the middle urban population, respectively, given in Appendix—Table A.1 of our recent study (Minhas *et. al.*, 1989), it can be easily verified that at all-India level, 1970-71's MPCTE size class from Rs. 28 to Rs. 43 corresponded to the observed size class from Rs. 15 to Rs. 24 in 1960, approximately. The same, however, could be assumed to apply to 1961-62. In order to ensure criterian (*b*), all-India urban poverty line for 1961-62, which was assumed to be the same as that for 1960, was first worked out from the already given Planning Commission's poverty line of Rs. 56.64 for 1973-74, by applying all-India middle Urban general consumer price indices of 145.1 for 1973-74 with 1970-71 = 100 and of 190.95 for 1970-71 with 1960 = 100 (given in Appendix—Tables A.2 and A.1 of our study mentioned above). Thus obtained, all-India urban poverty line of Rs. 20.44 in 1961-62 was then used alongwith the presently constructed state-specific relative indices for the middle urban population in 1961-62. On checking, these were found to be contained in the observed MPCTE class from Rs. 15 to Rs. 42.

had fractile groups lower than all-India, namely, Assam (6-29), Gujarat (10-44), Maharashtra (14-43), WB (7-34) and Delhi (2-27 percentile).

In the construction of the state-specific relative indices, one requires state-wise as well as all-India prices of the items forming the consumption basket and the corresponding consumption patterns to serve as the relevant weighting diagrams. Two alternative sets of price data, relating to the items forming the consumption basket, are used i.e. (*a*) market price data directly collected from different markets, and (*b*) the implicit NSS-cum-market price data which constitute mainly the NSS implicit price data obtained from the quantity and value of item-wise consumption given by the NSS. These two price sets, (*a*) and (*b*), described above, relate to 50 and 59 items of consumption, respectively. These individual items of the two consumption baskets are classified into twelve item groups, for each of which the price indices have been constructed. Appendix-Table A.1 gives the details on these item groups as well as the individual items belonging to them, under the two alternative price data. In the following sub-sections we describe (*a*) the data sources and the procedure for working out state-wise as well as all-India prices of the items included in index construction, (*b*) the corresponding relevant weighting diagrams and (*c*) the computational procedure followed for the construction of the relative indices.

2.1 *Prices*

In this section, we describe the data sets on prices, which have been used by us in the construction of relative indices. We shall first deal with the statewise prices in two categories: (*a*) market prices and (*b*) implicit NSS-cum-market prices; and later with all-India prices.

2.1.1.(*a*) *Statewise market prices*

Market prices for various items of consumption, with prior specifications of qualities, have directly been collected for a long time for the construction of consumer price indices for industrial workers (CPIIW) and non-manual employees (CPINM), respectively, from 50 and 45 industrial and urban centres, spread all over the country. The weekly price data for each CPINM centre, relating to the base year 1960, were collected for about 180 consumer items with 4 to 12 weekly quotations for each item. Though this raw price data for 1960 are contained in the voluminous registers maintained by the Central Statistical Organization (CSO), it will be a daunting task, requiring vast amount of resources and time, first to get hold of this massive raw data and then to process it to get at the average annual statewise prices for various consumer items. On the other hand, the Labour Bureau (1972) has published, in readily available form, the itemwise average annual prices in the base year 1960 for about 100 consumer items, for each of the fifty CPIIW centres.

From the common population centres in the CPIIW and the CPINM series, it was noted that there were no substantial differences between the prices of an item collected by these two sources. We, therefore, opted for the use of the published annual market price data collected for the fifty CPIIW centres in the construction of our relative indices. The itemwise annual average prices for each centre were worked out by the Labour Bureau as a simple average of the corresponding weekly price quotations. At the state level, the item-wise average annual prices were worked out by us as a simple average of the corresponding prices of the centres belonging to a particular state. State-wise classification of the fifty centres of the CPIIW series is given in Appendix-Table A.2 of our earlier study (Minhas *et. al.*, 1988).

For some items, the prices were not comparable across states because of the use of non-standard units, e.g., the prices for items such as medicines and school fee were available in terms of per dose and per student, respectively. The content of the dose and the class to which the school fee related might have differed across states. For some items, the units differed in terms of magnitude, e.g., in some centres the prices were available for small packs while for some others for bigger packs. We have converted these prices into standard units for all the centres, and hence for the states. However, in doing so, we have ignored the implicit differences in the prices of an item arising out of the size of the pack being small or big. In the case of road transport, the bus fare was not given in terms of standard units. The same, therefore, has been taken to be equal to the statewise revenue per km., as available from the "Working of State Transport Undertakings", (see Statistical Abstract 1963 and 1964 p. 348). Variety differences, even for well defined items having standard units, could not be taken into account.

Out of about 100 items covered under each urban centre, we have confined our attention to 59 items for constructing the price indices. In the choice of these 59 items, it has been kept in mind that (*a*) all the item groups were properly represented in the index, and (*b*) the items belonging to an item group were consumed in a majority of the states.

The same set of market price data have been employed for constructing the indices for the total as well as the middle population.

2.1.1.(*b*) *Implicit NSS-cum-Market Prices*

We have developed two different sets of implicit NSS-cum-Market prices for the construction of two relative indices—one for the total and the other for the middle percentiles of urban population. Both these sets of data relate to 50 items of consumption. For 31 items, mainly belonging to the food, fuel and light and clothing groups, the state-wise average prices for the total and the middle population were derived from the tabulated data on item-wise value and quantity of consumption, relating to the year 1961-62,

published in NSS Report No. 184.Though this published source provided such consumption data for 43 items, we excluded 12 of them as these items were not consumed in a majority of the states, or the NSS derived prices turned out to be unsatisfactory in several states. The 31 items thus chosen (in relation to the 50 included in the index) represented 75 and 86 percent of the all-India consumption basket for the total and the middle population. For the remaining 19 items, since it was not possible to obtain the NSS implicit prices, the same market price data of sub-section 2.1.1.(*a*) have been used for the total as well as the middle population. Out of these 19 items, four items, viz., pan leaf, supari, tobacco and country liquor, belonged to the item group-pan, supari, tobacco products and intoxicants, one item (i.e, shoes) to item group, clothing and footwear, and fourteen items to the miscellaneous non-food item group. The average prices of these items are not expected to be much different for the entire as well as the middle population.

Notice that the NSS data forming the basis of the NSS implicit prices related to household consumption and was inclusive of (*a*) cash purchases, (*b*) receipts in exchange of goods and services, (*c*) transfer receipts like gifts, loans, etc., and (*d*) home grown stock. The value of consumption out of (*b*) and (*c*) was imputed at the average local retail prices prevailing during the reference period, and the value of consumption out of (*d*) was computed at ex-farm (or ex-factory) prices. The average NSS prices were, therefore, implicitly based on the averages of the retail prices and the ex-farm prices.

Few item groups, such as pulses, cooked meals, mill cloth and handloom cloth, had to be treated as individual items, as the published NSS source provided the value and the quantity of consumption on these item groups only in the aggregate form.

In brief, the implicit NSS-cum-market price data will, hereafter, be referred as the NSS price data.

2.1.1 *All-India Prices*

All-India itemwise average prices were not readily available for the urban areas. These, however, could be worked out in an appropriate manner, if the state-specific prices and the quantities of consumption of an item were available. Let p_{is} and q_{is} denote the average price and total quantity of consumption of the i-th item for the s-th state ($s = 1,\ldots\ldots, S$). Then P_{ia}, the average price of item 'i' for all states together, or for all-India, will be given by the weighted arithmatic mean (with quantity weights)

$$P_{ia} = \sum_{s=1}^{S} q_{is}\, p_{is} / \sum_{s=1}^{S} q_{is}$$

As item-wise quantities of consumption of the various states in an year might not be available for each of the 50 or 59 items included in index construction, one could not work out all-India average prices from the above relation. However, it is *most interesting* to note that the weighted arithmatic mean with the quantity weights is equivalent to the weighted harmonic mean with the expenditure weights. That is, the above relationship is expressible in the alternative form

$$P_{ia} = \sum_{s=1}^{S} q_{is}\, p_{is} \Big/ \sum_{s=1}^{S} q_{is}\, p_{is}\, (1/p_{is})$$

$$= 1/\Big[\sum_{s=1}^{S} (e_{is}/p_{is}) \Big/ \sum_{s=1}^{S} e_{is}\Big]$$

where $e_{is} = P_{is}\ q_{is}$

= consumption expenditure on item 'i' for s-th state.

The use of this alternative formula enables us to work out appropriately all-India average prices in 1961-62 for the various items, on using the available relevant NSS expenditure weights.

From the published NSS source already mentioned we have also worked out all-India NSS implicit prices (from all-India itemwise value and quantity of consumption) for total population, for the same 31 items for which the state-specific NSS implicit prices were obtained earlier. A comparison of the all-India NSS prices with the corresponding prices obtained by the weighted harmonic mean formula reveals that there is practically no difference in item-wise all-India average price obtained by the two alternative methods.

On applying the weighted harmonic mean formula to the state-wise market prices and the state-wise NSS prices, with the NSS expenditure weights across various states, we have worked out a set of all-India average market prices relating to the entire population and two sets of all-India average NSS prices, one relating to the entire population and the other to the middle population. To facilitate comparison among the two alternative estimates of all-India average prices relating to the entire population, one based on the market price data and the other on the NSS price data, we present in Table 1 item-wise all-India urban average market prices and NSS prices for 26 consumer items common in the market and NSS price data sets.

An examination of Table 1 reveals that the two alternative prices were almost the same in case of nine items : namely, jowar, bajra, mustard oil, gingelly oil, fish, milk, banana, kerosene oil, and match box. The NSS prices were lower compared to the market prices for eleven items, viz.,

TABLE 1

ALTERNATIVE ESTIMATES OF ALL-INDIA URBAN AVERAGE PRICES BASED ON MARKET QUOTATIONS AND NSS HOUSEHOLD CONSUMER EXPENDITURE SURVEY, FOR DIFFERENT ITEMS OF CONSUMPTION: 1961-62

Sl. No.	*Name of the item*	*Unit*	*Market price*	*NSS price*
(1)	(2)	(3)	(4)	(5)
1.	Rice	Kg.	0.61	0.66
2.	Wheat	Kg.	0.43	0.50
3.	Jowar	Kg.	0.43	0.41
4.	Bajra	Kg.	0.48	0.46
5.	Coconut Oil	Kg.	2.98	2.37
6.	Mustard Oil	Kg.	2.34	2.36
7.	Groundnut Oil	Kg.	1.96	1.78
8.	Gingelly Oil	Kg.	2.28	2.31
9.	Vanaspati	Kg.	3.66	2.70
10.	Meat	Kg.	2.39	2.20
11.	Eggs	Dozen	1.68	1.52
12.	Fish	Kg.	1.56	1.56
13.	Milk	Kg.	1.69	0.71
14.	Ghee	Kg.	5.28	5.82
15.	Chillies	Kg.	2.20	2.10
16.	Turmeric	Kg.	1.14	1.98
17.	Salt	Kg.	0.07	0.22
18.	Potato	Kg.	0.53	0.45
19.	Banana	Dozen	0.40	0.38
20.	Sugar	Kg.	1.26	1.13
21.	Gur	Kg.	0.68	0.59
22.	Tea Leaf	Kg.	6.73	5.40
23.	Bidi	100 Nos.	0.68	0.60
24.	Cigarette	Pkt. 10	0.14	0.21
25.	Kerosene Oil	ltr.	0.36	0.37
26.	Match Box	50 sticks	0.05	0.05

coconut oil, potato, sugar, gur, tea leaf, and bidi. On the other hand, the NSS prices were higher for the six items, namely, rice, wheat, ghee, turmeric, salt, and cigarettes.

Though, the NSS implicit prices are noted to be lower than or equal to the market prices for most of the items at all-India level and therefore, for most of the states, the same may not hold in respect of item-wise state price relative to all-India which is the essential ingredient in the construction of the state-specific price index relative to all-India. Therefore, in view of the above noted observations that the NSS implicit prices are lower than or the same as the market prices for most of the items at all-India level, it may not be proper to infer that the state-specific relative index based on the use of market price data will be higher or lower than the one using the NSS price data.

2.1.3 *Other Prices*

Some of the items included in the index construction did not appear in the consumption baskets of a number of states. Therefore, in such cases prices under the two price data sets were not available. Such missing prices for an item in a state have been substituted by the average of item-specific prices in all other states. Secondly, in few cases, where the NSS prices happen to be unsatisfactory (either too-high or too low), the price of the adjoining state has been taken.

This proxy procedure, however, may affect the precision of the constructed state-specific price index relative to all-India. For instance, if for state 'A' the consumption of (say) bajra is negligible (as such bajra will be a luxury type item for state 'A') and the price quotation of bajra is not available, then the true weight of bajra in the budget of state '*A*' will be negligible. The average price of bajra in other states, where bajra may be one of the common staples of consumption, used as proxy for bajra price in state '*A*', is likely to be an underestimate of the 'true' price of bajra in state 'A'. For the computation of price index for state '*A*' relative to all-India, (*a*) if one compares the consumption basket for state '*A*' evaluated at the state '*A*' and all-India prices, then the index obtained (called *P* index) will remain unaffected, (*b*) if the consumption basket for all-India is used for comparison then the index obtained (called *L* index) will be under-estimated, and (*c*) the average of the two alternative indices *L* and *P*, i.e., $\sqrt{L \times P}$ (called *F* index) or $(L+P)/2$ will also be under-estimated. *L* and *P* index formulae are known for over-estimating and under-estimating the true index, respectively. Therefore, it is interesting to note that in view of the above noted limitations, the proxy (or substitution) procedure will contribute towards dampening, instead of exaggerating, the over-estimation of the true index by the use of *L* index.

2.2 *Weighting Diagrams*

In the construction of the various relative indices, the weighting diagrams (represented by the consumption expenditures on the various items forming the consumption basket) were worked out both at the state and all-India level, for the total as well as middle population, from the NSS consumer expenditure data for the year 1961-62, given in NSS Report No. 184. At the item group level, the weighting diagram used was the same for the two alternative indices based on the use of market price data and NSS price data. For individual items belonging to the five food groups, viz., (1) cereals and cereal products, (2) oils and fats, (3) meat, fish and eggs, (4) milk and milk products, and (5) condiments and spices, the weights were worked out as follows. The estimated NSS total expenditure on an item group was apportioned among the individuals items belonging to the item group in proportion to the NSS expenditures on each of them. As the item composition of these five food item groups is the same under the two alternative price data sets, the weights of the individual items falling in these item groups remain the same for the two price data sets.

For the NSS based indices, the weights for the individual items belonging to four item groups—(7) fruits and vegetables, (8) other food, (10) fuel and light, and (11) clothing and footwear-were obtained in the same manner as was done in the case of above mentioned five food item groups.[3] Similarly we worked out the weights of items bidi, cigarette and tobacco from the NSS total expenditure on the item group, tobacco and tobacco products.

For indices relating to the total population and the middle population and based on market prices data, the weights for the individual items belonging to every item group, except the above mentioned five food item groups, were worked out by dividing the NSS item group weight into the individual items (belonging to the specific item group) on the basis of shares of individual items in the total expenditure of the specific item group available from the Family Living Surveys (FLS). These surveys (FLS) were carried out (with 1958-59 as the reference year) with a view to providing the weighting diagrams for the construction of centre-wise CPIIW. The FLS provided the centre-wise proportions of consumption expenditure for the individual items contained in different item groups. A simple average of the centre-wise, item-specific proportions of expenditure across centres falling in a state was taken to arrive at the state-wise proportions of expenditure on items within each item group. These same proportions were made use of to get at the item-wise break-up of the NSS total expenditure for item groups other than the five food item groups, relating to the total as well as the middle population.

[3]Serial numbers of the item groups mentioned above in the two paragraphs correspond to the serial numbers of these item groups as given in Appendix-table A.1.

For the 14 miscellaneous items, common in the two price data sets, the weights are the same for the market price based and the NSS price based indices. These 14 items together form the item group, other non-food. As the NSS expenditures on individual items of pan leaf, supari and country liquor were not available, the weights of these three items had to be obtained by dividing the NSS expenditure on item group-pan, supari and intoxicants in the proportions of FLS expenditures on these three items.

The state-wise weighting diagram, obtained as described above, was further aggregated to arrive at the all-states or all-India weighting diagram. For this purpose, the state-wise per capita expenditure on each item was multiplied by the state-specific population and these figures were then added across the various states to provide us with the all-India weighting diagram.

Notice that in the present study, the state-specific relative indices in 1961-62 have been constructed for seventeen states/union territories, of which the state of Haryana did not exist at that time. Since, the centre-wise market price data collected for the CPIIW series were available for one centre each belonging to the present day Punjab and Haryana, we were tempted to consider Punjab and Haryana separately instead of the combined Punjab of 1961-62. However, the NSS prices and NSS weighting diagrams for Punjab and Haryana were assumed to be the same as for the combined Punjab in 1961-62. The populations of the states of Haryana and Punjab have been obtained by apportioning the population of combined Punjab in 1961-62 on the assumption that the share of Haryana in the combined population of Haryana, Punjab and Himachal Pradesh were the same in 1961-62 and 1970-71.

2.3 Referring to section 2.1.3 and in terms of the notations used in section 2.1.2, it may be noted that:

$$L = \sum_{i=1}^{m} q_{ia}\, p_{is} \Big/ \sum_{i=1}^{m} q_{ia}\, p_{ia} = \sum_{i=1}^{m} w_{ia}\, (p_{is}/p_{ia})$$

and

$$P = \sum_{i=1}^{m} q_{is}\, p_{is} \Big/ \sum_{i=1}^{m} q_{is}\, p_{ia} = 1 \Big/ \sum_{i=1}^{m} w_{is}\, p_{ia}/p_{is}, \text{ where}$$

$$w_{il} = p_{il}\, q_{il} \Big/ \sum_{j=1}^{m} p_{jl}\, q_{jl} \text{ for } l = \text{a (all-India) or } s \text{ (state)},$$

and m is the number of items forming the consumption basket. Therefore, L index is expressible as a weighted arithmatic average of the state-specific price relatives (relative to all-India) of various items of consumption basket with the weighting diagram relating to all-India. Similarly, P index is

expressible as a weighted harmonic average of the state-specific price relatives with the weighting diagram relating to the state. Therefore, L index and P index are the same as those obtained by employing Laspeyre's and Paasche's formulae, respectively. L index is known to suffer from an upward bias whereas P index from a downward bias. An average of the two will obviously be more close to the 'true' index. Most of the earlier studies employed the geometric average of L and P indices i.e., $\sqrt{L \times P}$ (called F index). Rath (1973) however, used simple arithmatic average, i.e., $(L+P)/2$. This study, like other similar earlier studies, has worked out L and P indices with a view to give some idea about the bounds for the true index value. We have also constructed the F index, in terms of which the main results are presented and analysed.

Employing each of the L, P and F index formulae, we have first worked out state-wise price differential indices (relative to all-India) at the item group level[4] and then these have been aggregated to arrive at the corresponding indices for major item groups, all food, all non-food and general (all food plus all non-food).

3. State-Wise Price Indices Relative to All-India

The general state-specific relative indices based on the market and NSS price data sets and relating to the total as well as middle urban population in 1961-62, worked out by employing L, P and F index formulae, are presented in Appendix-Table A.2 for the seventeen states of India.

3.1 *Comparison between L and P indices*

As per expectation, L index was found greater than P index in all except three out of the total sixty-eight cases. In the three exceptional cases, where P index was more than L index, the difference between the two indices was negligible. Substantial divergence between L and P indices was registered by few states only. Maximum difference between the two indices occured for the state of J&K—it was 19.3 percentage points in respect of the NSS price based relative index for the total population (NRITP), and 19.0 and 16.6 percentage points for the market price based relative indices for the total and the middle population (MRITP and MRIMP), respectively.

In respect of the NSS price based relative index for the middle population (NRIMP), Kerala had the maximum difference of 15.2 percentage points between L and P indices and the second maximum difference of 14.4

[4]NSS price based state-wise relative indices for the twelve item groups, obtained by F index formula and relating to the entire urban population in 1961-62, are presented in Appendix-Table A.3.

percentage points was registered by J&K. The difference of more than 5 percentage points occured for six states in respect of NRITP, seven states in respect of MRITP, five states with respect to NRIMP and seven states in respect of MRIMP. The large difference between L and P indices for a state was attributable only to the large difference observed between the state and all-India weighting diagrams. However, there were instances when the differences between L and P indices were small inspite of the large difference in the state-specific and all-India weighting diagrams. Such was the case with the states of Bihar, MP, Maharashtra, UP and WB.

With a view to indicate the order of bias involved in the use of L, P and F indices, Chatterjee and Bhattacharya (1974) obtained the weighted averages of the state-wise indices L, P and F with weights being the respective state shares, at all-India prices, in the aggregate of expenditure for all-India. Comparing them with 100, they indicated the order of bias (in percentage) in the L, P and F indices. We fail to read the logic underlying this procedure of depicting the order of bias in the L, P and F indices. However, it ought to be noted that algebraically, the weighted average of state-specific P index must turn out to be 100, when the weights suggested by them are used. Therefore, the procedure followed by them simply provided only a computational check on the state-specific indices obtained by using P index formula. It was because of this specific reason that they got weighted average of the state-wise P indices nearly equal to 100 in all the cases. It is not possible, therefore, to assess the quality of results based on the use of L, P and F index formulae by employing the Chatterjee-Bhattacharya procedure.

3.2 *Comparison of Relative Indices Based on Market and NSS Prices*

The two sets of state-wise values of the F index for all food, all non-food and all food plus all non-food, based on two alternative sets of prices, are presented in Table 2. These index values relate to the total urban population of each state. As the weighting diagram at the item group level is the same under both the alternatives, the difference between the two values of the index is mainly due to the use of different price sets.

An examination of Table 2, reveals that ten states, viz., Bihar, Gujarat, Karnataka, MP, Maharashtra, Rajasthan, TN, UP, WB and Delhi, had differences of less than three percentage points in the two alternative values of the general index. In thirteen out of the seventeen states, the difference turned out to be less than five percentage points. Haryana and J&K were the two states where the difference was as high as 9.5 and 11.1 percentage points, respectively.

Considering the All food index, the difference in the two index values was less than five percentage points for thirteen states, out of which eleven states had the same outcome in respect of the general index. Contrary to

TABLE 2

STATEWISE URBAN CONSUMER PRICE INDICES (RELATIVE TO ALL-INDIA) FOR ALL FOOD, ALL NON-FOOD AND GENERAL FOR 1961-62; BASED ON THE USE OF THE NSS AND MARKET PRICES, AND *F* INDEX FORMULA

Sl. No.	*Name of the State*	*NSS Prices*			*Market Prices*		
		All Food	*All Non-Food*	*General*	*All Food*	*All Non-Food*	*General*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	A. Pradesh	92.9	87.9	91.0	97.1	94.1	95.9
2.	Assam	106.3	120.8	112.1	107.0	109.5	108.0
3.	Bihar	99.1	101.3	100.0	103.5	95.0	99.7
4.	Gujarat	107.1	111.0	108.6	107.0	115.4	110.2
5.	Haryana	100.6	103.3	101.7	95.3	87.8	92.2
6.	J & K	89.0	98.9	93.3	85.7	75.7	82.2
7.	Karnataka	97.1	99.5	98.0	97.9	92.7	96.0
8.	Kerala	103.2	94.9	100.0	105.5	79.2	94.9
9.	M.P.	93.3	82.7	88.9	90.9	87.1	89.4
10.	Maharashtra	115.0	112.9	114.1	106.5	117.9	111.2
11.	Orissa	101.2	103.9	102.3	106.3	88.2	98.2
12.	Punjab	100.5	103.5	101.7	94.8	95.1	94.9
13.	Rajasthan	104.6	96.3	101.4	102.8	92.9	99.0
14.	Tamil Nadu	100.4	108.4	103.6	100.4	105.9	102.5
15.	Uttar Pradesh	89.6	85.5	88.0	94.1	86.2	90.9
16.	West Bengal	106.7	105.8	106.3	105.6	111.1	107.8
17.	Delhi	105.4	127.9	114.7	101.2	133.6	114.4
18.	All India	100.0	100.0	100.0	100.0	100.0	100.0

Note: General refers to All food plus All-non-food.

this, the two alternative values of all non-food index differed by more than five percentage points for majority of the states.

Though the rankings of the states in respect of the market price based index and the NSS price based index were not the same, the rank correlation between the two alternative index values was observed to be high for both the general and the all food index.

Inspite of the fact that the two alternative price data sets have their own limitations and shortcomings, the values of general as well as all food index, based on the use of these two price data sets, happily do not turn out to be very different from one another for most of the states. Nevertheless, for the construction of state-specific relative indices, the use of the NSS prices, in comparison to the market prices, can be regarded as somewhat better on conceptual grounds, because (*a*) NSS prices are average of retail prices and ex-farm (or ex-factory) prices used for imputing the value of home-grown produce, whereas the market enquiries prices generally neglect the non-monetized part of consumption, and (*b*) as the NSS—implicit-prices reflect truly representative averaging of different qualities and locations of the actually observed consumption flows over the reference period, their use in inter-state comparisons of the real cost of living and welfare is far more appropriate than the price data obtained in market enquiries which are generally conducted in terms of pre-specified qualities of different commodities and services and without reference to the time patterns of their relevant consumption flows. In view of these important considerations, we shall confine the discussion of our results only to the state-specific relative indices based on NSS prices.

To highlight the comparative picture of different states in respect of state-specific price differential in relation to all-India, we present in Table 3, the classification of the various states into five categories formed in terms of the range of three different state-specific relative indices, two for major aggregate groups-general and all food—and one for the important food item group, cereals and cereal products, which represents the major share of food group. The indices considered here are based on the use of the NSS price data and relate to the total urban population in 1961-62. The five categories, denoted by *A,B,C,D* and *E* refer to the arbitrarily formed index ranges, viz., less than 91.5, 91.5-97.5, 97.5-102.5, 102.5-108.5 and greater than 108.5 percentage points, respectively. Allowing for errors of measurement, any state belonging to the middle category *C* may be regarded as having approximately the same price level, for relevant major item group/item group, as all-India. States belonging to the extreme categories *A* and *E* may be regarded as experiencing item group-specific price levels substantially different from all-India. Seven states belonged to the neutral category *C* for the general index and five states in the case of all food index. The four states, which were common in the two sets, were Bihar, Haryana, Orissa and Punjab. With respect to the cereals and cereal products index, eight states fell in category *C*, while four out of these eight states, viz., Bihar, Haryana, Punjab, and TN, belonged to the same category *C* in terms of the all food index also.

In respect of general as well as cereals and cereal products indices, three

TABLE 3

CLASSIFICATION OF STATES INTO FIVE CATEGORIES FORMED IN TERMS OF RELATIVE INDICES FOR GENERAL, ALL-FOOD AND CEREALS AND CEREAL PRODUCTS : TOTAL URBAN POPULATION, 1961-62

Index range category (% age points)	*General*	*All Food*	*Cereal & Cereal products*
(1)	(2)	(3)	(4)
Category—A (Below 91.5)	UP(88), MP(89), AP(91)	J&K(89), UP(90)	J&K(64), MP(90), Orissa(86)
Category—B (91.5—97.5)	J&K(93)	AP(93), MP(93), Karnataka(97)	UP(93)
Category—C (97.5—102.5)	Bihar(100), Kerala(100), Karnataka(98), Haryana(102), Orissa(102), Punjab(102), Rajasthan(101)	Bihar(100), Haryana(101), Orissa(101), Punjab(101), TN(100)	AP(100), Assam(99), Bihar(98), Haryana(100), Punjab(100), TN(102), Karnataka(102), Kerala(100)
Category—D (102.5—108.5)	TN(104), WB(106)	Kerala(103), Rajasthan(105), Assam(106), Gujarat(107), WB(107), Delhi(105)	WB(103)
Category—E (Above 108.5)	Gujarat(109), Assam(112), Maharashtra(114), Delhi(115)	Maharashtra(114)	Rajasthan(110), Gujarat(118), Maharashtra(112), Delhi(116)

states belonged to the lowest category *A*, experiencing relative price levels (relative to all-India) of less than 91.5 percentage points, whereas four states were in the highest category *E*, experiencing relative price levels greater than 108.5 percentage points. In respect of both the indices, while MP fell in category *A*, on the other hand, Gujarat, Maharashtra and Delhi fell in category *E*.

The states of WB and Maharashtra belonged to the same category *D* and *E*, respectively, in respect of all the three indices. Gujarat, Assam and Delhi moved from the highest price category *E* for the general index to the next lower category *D* for the all food index. Similar was the case for J&K. However, the states of AP, MP, Kerala and Rajasthan moved from a lower category for the general index to the next higher category for the all food index.

The index for cereals and cereal products, which constitute the major share in the food group, was the lowest for J&K and remained substantially lower than for any other state. This could be attributed to the fact that cereals were heavily subsidised in J&K in the early sixties. In contrast, the indices of all other food item groups for J&K, except that of milk and milk products, were noted to be more than 100 percentage points. Nevertheless, the index for the entire food group also remained the lowest for J&K. For six states, viz., AP, Gujarat, Karnataka, Rajasthan, UP and Delhi, the cereals and cereal products index was higher than all food index. On the contrary, the states of Assam, Kerala and MP moved from a higher relative index category for all food to the next lower index category for cereals and cereal products.

The range of variation across states was almost the same for the two relative indices for the general and all food groups, as the former index varied from 88.0 to 114.7, whereas the latter from 89.0 to 115.0 percentage points. However, the index for cereals and cereal products varied markedly across states from 64.3 to 117.7 percentage points. In summing up, we may conclude that for majority of the states, the state-wise relative price differentials in 1961-62, for the total urban population, were somewhat similar for all food in comparison with the general group. However, in contrast with the all food group, for the cereals and cereal products subgroup the statewise relative price differentials were far more sharp.

3.3 *Comparison between Relative Indices for Total and Middle Urban Population :* 1961-62.

The comparison between the two price differential indices (relative to all-India), for the total and the middle population, is confined to general indices obtained by using *F* index formula. At the outset, it is worth noting that the difference in these two indices will arise due to the use of the different weighting diagrams and the different price data sets. This will be the case when these two indices are based on the use of the NSS price data. On the other hand, when these two indices are based on the use of the market price data, the difference in the two indices will be entirely due to the different weighting diagrams used, because, the market price data for the total and the middle population are the same. The difference in

the relative price indices for the total and middle population based on the use of the NSS prices, compared to that based on the use of the market prices, will be more sensitive to the specification of prices for the total and the middle population than to that of the weighting diagram. This difference would reflect quality differences as well as other differences in prices faced by different segments of the population.

Based on the results presented in Appendix-Table A.2, we report, in Table 4, state-wise differences in the two indices obtained on using each of the two alternative price data sources. An examination of this table reveals that, based on the use of market prices, the two indices differed by

TABLE 4

CLASSIFICATION OF STATES ACCORDING TO DIFFERENT RANGES OF THE ABSOLUTE DIFFERENCE IN THE GENERAL INDICES FOR THE TOTAL AND THE MIDDLE URBAN POPULATION, BASED ON THE USE OF THE MARKET PRICES AND THE NSS PRICES : 1961-62

Range of absolute differences in the two indices (%age points)	*States*
	Market Prices
0—2.5	J&K (0.1), Karnataka (—0.7), TN (—0.2), WB (—0.1), Assam (1.2), Gujarat (—1.2), Maharashtra (1.6), MP (—1.7), Punjab (—1.9), AP (—2.0), Bihar (—2.2), Delhi (2.2), Haryana (—2.4).
2.5—4.0	Orissa (—2.9), Kerala (—3.9), UP (—3.2)
4.0—5.0	Rajasthan (—4.7).
	NSS Prices
0—2.5	Bihar (0.7), Karnataka (0.1), Rajashtan (—0.4), Gujarat (—1.3), TN (1.7), Kerala (—2.3),
2.5—4.0	Delhi (—2.9)
4.0—5.0	Maharashtra (4.3), WB (—4.9)
6.0—8.0	UP (—6.4), Orissa (—7.8), AP (—8.0)
10.0 and above	Haryana (10.0), Punjab (—10.0), J&K (10.4), Assam (11.9), MP (—14.7).

Note: Figures within brackets are statewise actual difference of the index for the total population from that for the middle population.

less than 2.5 percentage points for 13 out of the 17 states. The maximum difference of 4.7 percentage points occured for the state of Rajasthan. Contrary to this, the differences in the two indices, based on the use of the NSS prices, were comparatively large for majority of the states—for 10 out of the 17 states, the state-wise relative index for the total population compared to that for the middle population differed by more than 4.0 percentage points. These ten states, can be classified into four categories, viz., (*a*) state prices compared to all-India are on the higher side for both total and middle population, (*b*) state prices compared to all-India are on the lower side for both total and middle population, (*c*) state prices in relation to all-India are on the higher side for total and on the lower side for middle population and (*d*) state prices in relation to all-India are on the lower side for total and on the higher side for middle population. Assam, Maharashtra, Orissa and West Bengal belonged to category (*a*)—for the first two states, state price differentials relative to all-India were more dominant for the total than for the middle population and for the latter two states it was the other way around. Andhra Pradesh, Uttar Pradesh and J&K fell in category (*b*)—for the first two states, state price differentials relative to all-India were predominant for the total than for the middle population and went the other way around for J&K. Haryana and Punjab fell in category (*c*) where the relative price differentials were dominant for the middle population only. On the contrary, Madhya Pradesh belonging to category (*d*) had the dominant relative price differential for total population only. Bihar was a unique case, which showed practically no price differential relative to all-India both for the total as well as middle population.

In view of the observations made above and in the middle of the previous section 3.2, we may conclude that the state-wise price differential indices (relative to all-India) for the middle population, based on the use of the NSS price data, are more appropriate than those based on the use of the market price data. Secondly, NSS price based, state-wise relative indices for the middle and the total urban population differed markedly in 1961-62 for majority of the states. This highlights the importance of using the proper and relevant index rather than using some expedient proxies for it. For instance, in the context of estimating the state-specific urban poverty incidence in 1961-62, given the all-India urban poverty norm in 1961-62, the use of the state-wise indices (relative to all-India) for the total urban population, rather than the appropriate indices relating to the middle urban population in 1961-62, would give rise to distorted estimates of state-specific urban poverty norms in that year.

4. Comparison With Similar Indices Constructed By Others

As mentioned earlier, Bhattacharya et. al. (1980) obtained state-wise general

price indices (relative to all-India) for the total urban population in 1973-74. To facilitate comparison between these indices and our indices, we require an updation of our indices from the year 1961-62 to the year 1973-74. In an earlier study (Minhas *et. al.*, 1988) we had worked out the state-wise general consumer price indices for the total urban population for a number of NSS survey years, including the year 1973-74, with 1960 as the base year. Assuming these state-wise indices for 1973-74 with the base year of 1960 to be the same as those with 1961-62 as the base year, we apply them to our NSS price based, state-wise relative indices for the total urban population in 1961-62. This gives us the state-wise relative indices for the year 1973-74. These indices, as well as those of Bhattacharya et. al., relate to the total urban population and are based on the NSS price data and F index formula. The two sets of statewise indices, alongwith the differences between the two, are presented in Table 5.

In ten out of the sixteen states, the difference between the two indices is 2.5 percentage points or less. Only for five states, namely, Haryana, Kerala, Orissa, TN and WB, the difference is large, lying in the range from 6 to 13 percentage points.

There seems to be a serious flaw in the results reported by Bhattacharya et. al., because the state-specific index relative to all-India and all-India index relative to a state are both below 100 for the states of Haryana and Kerala and above 100 for Rajasthan. This, however, cannot hold because if one index is above (below) 100 then the other ought to be below (above) 100. Therefore, their results for these three states suffer from some error.

Notice that our updated indices to the year 1973-74 are not strictly comparable with Bhattacharya et. al. indices, as the former are indirectly derived and the latter are directly obtained. Furthermore, our indices are based on the entire consumption basket, whereas Bhattacharya et.al.'s indices left out the miscellaneous goods and services group from the consumption basket (This group covered 25 percent of the household budget). It is, however, interesting to note that inspite of these dissimilarities in the construction of our and their indices, the two sets of indices are found to differ only marginally for most of the states.

5. State-Wise Relative Indices For 1970-71 And 1983.

Similar to the state-wise relative indices for 1973-74 obtained in section 4 by updating the corresponding indices for 1961-62, we have worked out the state-wise price indices (relative to all-India) for the total urban population for the year 1970-71 and 1983. These indices refer to *F* index formula and are based on the use of the NSS prices. We have computed these indices for cereals and cereal products, all food, all non-food and the general group, and these are presented in Table 6 alongwith those for 1961-62.

TABLE 5

STATE-WISE GENERAL CONSUMER PRICE INDICES (RELATIVE TO ALL-INDIA) FOR TOTAL URBAN POPULATION IN 1973-74 : A COMPARISON

States	*Our Index*	*Bhattacharya et. al., index*	*Difference between the two indices*
(1)	(2)	(3)	(4)
AP	89.4	89.7	—0.3
Assam	104.7	102.6	2.1
Bihar	107.3	109.8	—2.5
Gujarat	112.4	111.0	1.4
Haryana	109.9	99.7	10.2
J&K	81.9	83.2	—1.3
Karnataka	101.9	103.0	—1.1
Kerala	107.6	99.4	8.2
MP	97.6	97.9	—0.3
Maharashtra	106.6	107.4	—0.8
Orissa	97.9	85.2	12.7
Punjab	103.8	101.4	2.4
Rajasthan	106.7	102.6	4.1
Tamil Nadu	99.2	93.2	6.0
UP	93.5	93.4	0.1
West Bengal	101.5	113.8	—12.3
Delhi	115.3	N.A.	—
All-India	100.0	100.0	—

Let us examine the comparative picture of the state-specific price differentials (relative to all-India) at these three different points of time. We present below in Table 7 the ranges of variation across states in respect of each of the four different indices at the three points of time.

Table 7 shows that in all the three years, the extent of inter-state price differentials (relative to all-India) was the highest for cereals and cereal products, second highest for all non-food, and the lowest and almost the same for all-food and general (all food plus all non-food). The range of the

TABLE 6

STATEWISE CONSUMER PRICE INDICES (RELATIVE TO ALL INDIA) FOR CEREALS AND CEREALS PRODUCTS, ALL FOOD, ALL NON-FOOD AND GENERAL, FOR ENTIRE URBAN POPULATION: 1961-62, 1970-71 AND 1983

Sl. No.	Name of the States	*Cereals & Cereal Prodts.*			*All Food*			*All non-food*			*General*		
		1961-62	1970-71	1983	1961-62	1970-71	1983	1961-62	1970-71	1983	1961-62	1970-71	1983
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1.	A. Pradesh (AP)	99.6	96.8	87.5	92.9	91.7	87.2	87.9	91.1	90.7	91.0	92.0	88.7
2.	Assam (ASM)	98.8	99.5	85.1	106.3	107.6	101.6	120.8	113.8	101.9	112.1	110.4	103.4
3.	Bihar (BHR)	98.1	117.8	115.7	99.1	108.0	104.7	101.3	99.2	103.3	100.0	103.4	103.0
4.	Gujarat (GJT)	117.7	106.4	107.1	107.1	102.7	106.3	111.0	113.6	114.0	108.6	107.0	109.6
5.	Haryana (HRY)	100.3	106.8	95.5	100.6	102.0	94.7	103.3	115.7	130.3	101.7	107.1	107.2
6.	J & K	64.3	43.1	59.1	89.0	81.7	88.0	98.9	111.0	104.0	93.3	91.7	94.6
7.	Karnataka (KRN)	102.4	105.8	99.4	97.1	97.9	95.2	99.5	103.7	110.6	98.0	101.0	100.4
8.	Kerala (KER)	99.8	108.7	108.9	103.2	106.1	110.3	94.9	99.9	109.0	100.0	104.6	110.3
9.	M.P.	89.8	106.9	99.2	93.3	99.9	95.8	82.7	86.3	92.5	88.9	94.2	95.8
10.	Maharashtra (MHR)	111.7	103.7	116.7	115.0	112.8	121.5	112.9	109.8	109.1	114.1	110.4	115.5
11.	Orisa (ORS)	86.3	100.6	105.5	101.2	105.1	105.7	103.9	105.1	106.8	102.3	104.6	105.7
12.	Punjab (PNB)	100.3	104.6	92.8	100.5	106.2	95.7	103.5	105.6	97.0	101.7	106.2	97.6
13.	Rajasthan (RJN)	110.4	104.5	102.2	104.6	104.9	101.7	96.3	98.0	102.6	101.4	103.2	102.4
14.	Tamil Nadu (TN)	102.4	85.8	118.1	100.4	91.5	107.7	108.4	110.0	101.1	103.6	98.4	106.6
15.	U.P.	92.7	95.1	89.2	89.6	93.7	89.7	85.5	87.0	93.7	88.0	91.2	91.1
16.	West Bengal (WB)	103.0	107.4	89.2	106.7	105.2	97.0	105.8	98.7	93.0	106.3	102.7	95.4
17.	Delhi (DLI)	115.6	125.4	105.1	105.4	112.4	102.2	127.9	130.4	126.0	114.7	118.1	110.5
	All India	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: This table refers to *F* index.

TABLE 7

RANGES OF VARIATION ACROSS STATES IN TERMS OF EACH OF THE FOUR GROUP INDICES : 1961-62, 1970-71 AND 1983

Index group	*Year*		
	1961-62	1970-71	1983
Cereals and Cereal Products	64.3—117.7	43.1—125.4	59.1—118.1
All Food	89.0—115.0	81.7—112.8	87.2—121.5
All Non-food	82.7—127.9	86.3—130.4	90.7—130.3
General	88.0—114.7	91.2—118.1	88.7—115.5

general index was almost the same in all the three years, covering a period of over two decades. However, for the all-food index, the range progressively widened in the subsequent years, i.e., the range across states was more in 1970-71 compared to 1961-62 as well as 1983 compared to 1970-71. It was the other way round for the all non-food index, i.e., a progressive decline in it was registered in the subsequent years.

With a view to examining the movement in the state-specific price level relative to all-India price level over time, we present in Table 8, five-fold classification of states, corresponding to the different, mutually exclusive sections of the range of variation of each of the relative indices for cereals and cereal products, all non-food and general for the three years 1961-62, 1970-71 and 1983. These five categories are arbitrarily formed and are the same as those of Table 3 in section 3.2. Allowing for the margin of errors in measurement, we may refer to the middle category, C, as 'neutral', in the sense that a state falling in it may be regarded as experiencing the same price level for the broad item group as that for all-India. From the examination of the results of Table 8, the following points emerge:

1. States appearing in the same category in all the three years were, (*a*) J & K lying in the lowest category, A, for both cereals and cereal products and all-food indices, and in the next higher category, B, for the general index, (*b*) AP falling in category A for all non-food and general indices except in 1970-71 when it moved to the next higher category, B, for the general index, (*c*) Gujarat remained in the highest category, E, for all non-food and general indices except in the year 1970-71 when it moved to the second highest category, D,

TABLE 8

CLASSIFICATION OF STATES INTO FIVE CATEGORIES WITH RESPECT TO RELATIVE INDICES FOR CEREALS AND CEREAL PRODUCTS, ALL FOOD, ALL NON-FOOD AND GENERAL, AND RELATING TOTAL URBAN POPULATION: 1961-62, 1970-71 AND 1983

Index category (*%age points*)	*Cereals & cereal products*			*All food*			*All non-food*			*General*		
	1961-62	1970-71	1983	1961-62	1970-71	1983	1961-62	1970-71	1983	1961-62	1970-71	1983
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Category—*A* (Below 91.5)	*J&K*, MP, ORS	*J&K*, TN	AP, ASM, *J&K*, UP, WB	*J&K*, UP	*J&K*	AP, *J&K*, UP	*AP*, MP, UP	*AP*, MP, UP	*AP*	AP, MP, *UP*	*UP*	AP, *UP*
Category—*B* (91.5-97.5)	UP	AP, UP	HRY, PNB	AP, KNR, MP	AP, TN, UP	HRY, KRN, MP, PNB, WB	KER, RJN	—	MP, PNB, UP, WB	*J&K*	AP, *J&K*, MP	*J&K* MP, WB
Category—*C* (97.5-102.5)	AP, ASM, BHR, HRY, KRN, KER, PNB, TN	ASM, ORS	KRN, MP, RJN	BHR, HRY, ORS, PNB, TN	KRN, UP, HRY	ASM, RJN, DLI	BHR, J&K KRN	BHR, KER, RJN, WB	ASM, TN	BHR, HRY, *KRN*, KER, ORS, PNB, RJN	*KRN*, TN	*KRN*, RJN, PNB

(*Contd.*)

TABLE 8 (*Contd.*)

Category—D (102.5-108.5)	WB	GJT, HRY, KRN, MP, MHR, PNB, RJN, WB	GJT, ORS, DLI	ASM, *GJT* KER, RJN, WB, DLI	ASM, BHR KER, *GJT*, ORS, PNB, RJN, WB	BHR, *GJT* ORS, TN	HRY, *ORS*, PNB, TN, WB	KRN, *ORS*, PNB	BHR, J&K *ORS*, RJN	TN, WB	BHR, GJT, HRY, KER, ORS, PNB, RJN, WB	ASM, BHR, HRY, ORS, TN
Category—*E* (Above 108.5)	GJT, MAR, RJN, DLI	BHR, KER, DLI	BHR, KER, MHR, TN	*MHR*	*MHR*, DLI	*MHR*, KER	ASM, *GJT*, *MHR*, *DLI*	ASM, *GJT*, HRY, J&K, *MHR*, TN, *DLI*	*GJT*, HRY, KRN, KER, *MHR*, *DLI*	*GJT*, ASM, *MHR*, DLI	ASM, *MHR*, *DLI*	GJT, KER, *MHR*, *DLI*

Note: Underlined states are those appearing in all the three years.
Source: Table 6.

for the general index. It continued in category D in respect of all-food as well as cereals and cereal products indices, with the exception that it was in the highest category, E, for cereals and cereal products in 1961-62, (*d*) the state of Maharashtra was a unique case belonging to the highest category, E, in respect of all the four indices, except in the year 1970-71 when it switched over to the next lower category, D, for cereals and cereal products, (*e*) Delhi stuck to category E for both all non-food and general indices, (*f*) Karnataka remained in the neutral category, C, for the general index and thus experienced all-India general price level in all the three years, and (*g*) Orissa belonged to category D, experiencing somewhat higher price level than all-India in respect of both all non-food and general groups, except that its general price level in 1961-62 was more or less the same as that of all-India.

2. General index for states of Bihar, Haryana, MP and Orissa moved to the next higher category in 1970-71 and 1983 as compared to 1961-62. Same was the case with Bihar and Orissa for the all-food index and for Bihar and Kerala for the cereals and cereal products index.
3. *Progressive rise in the index value, moving from a lower to a higher category* in subsequent years, occured for Kerala with respect to the general index (switching from the neutral category C in 1961-62 to category D in 1970-71 and to category E in 1983), and thus suffering growing relative price differentials in the two subsequent years. The same was the case with Orissa for cereals and cereal products and with Karnataka, Kerala and Rajasthan for the all non-food index. In contrast to this, a *progressive decline in the state-specific index value* was registered over the period from 1961-62 to 1983 for WB in respect of all non-food index, and AP and Rajasthan for the cereals and cereal products index.
4. For some states, the movement of the state-specific relative indices over time was such that they moved to a higher category in 1970-71 and then to a category in 1983 which was the same or next lower to that in 1961-62. Such was the case with the states of AP, Punjab and Rajasthan for the general index; with Karnataka, MP, Punjab, UP and Delhi for the all food index; and with Haryana, Karnataka, MP and Punjab for cereals and cereal products index. In contrast to this, some state-specific relative indices were noted to be moving to a category in 1970-71 lower than that in 1961-62 and then to a higher category in 1983. This happened with the states of Gujarat for the general index; with TN for all the four indices; and with Maharasthra for the cereals and cereal products index.
5. There were also instances when the index category in 1961-62 did not change in 1970-71 but moved to a lower category in 1983. This

was observed to be the case for the states of Assam and WB for the general index; for AP, Assam, Haryana, Rajasthan and WB for the all-food index; for Assam and Punjab in respect of the all non-food index; and for Assam, UP, WB and Delhi in respect of the cereals and cereal products index.

6. Concluding Remarks

Two alternative sets of state-wise price data, one comprising of market retail prices, relevant to all sections of the urban population, and the other based mainly on NSS implicit prices, different for different sections of the urban population, have been combined with NSS—based consumption pattern for different sections of the urban population, to obtain the indices of state-specific consumer price differentials (relative to all-India) in 1961-62 for the total as well as the middle urban population. Separate state-specific relative price differential indices for three broad aggregate commodity groups, namely, all food, all non-food and all item groups together (general), and for the important food item group cereals and cereal products, have been provided for seventeen states/union territories. The general (all consumer items) state-specific relative indices for the total urban population in 1961-62 have been updated to correspond to the three NSS survey periods, 1970-71, 1973-74 and 1983.

The following broad oonclusions would seem to emerge from the results of this study:

1. NSS price based general price indices for J&K (relative to all-India), for the total urban population in 1961-62, were subject to relatively large formula errors, because the difference between L and P indices was very large—a situation arising from the widely different budget patterns observed for J&K state and all-India.
2. The use of two alternative price data sets, one comprising of the market prices and the other mainly of the NSS implicit prices, did not show marked difference in the values of state-wise relative indices in 1961-62 for the all-food as well as for all commodity groups taken together in most of the states. However, in respect of the all non-food index, wide variations across states were observed.
3. State-specific price differentials (relative to all-India) for the total urban population in 1961-62, for the all food group and all commodity groups taken together, were not different for majority of the states. For the cereals and cereal products group, these relative price differentials were however much sharper than for the all food group. The relative index for cereals and cereal products as well as for all food was the lowest for J&K and remained substantially

lower than that for other states over the period of about two decades covered by our study.

4. There were marked differences in the NSS price-based, state wise relative indices for the middle and the total urban population in 1961-62 for majority of the states. This highlights the relavance and importance of using the proper relative indices relating to the appropriate fractiles of the middle population, rather than the improper ones relating to the total population, for estimating state-specific urban poverty lines based on the all-India urban poverty norm.
5. There was only one earlier study, done by Bhattacharya *et. al.* whose results could be compared with our similar results. However, the index computations of Bhattacharya *et. al.*, were worked out directly from the relevant data of 1973-74, whereas our results were obtained indirectly by properly updating our results for 1961-62 to 1973-74. The difference in the state-wise relative indices of the two studies was noted to be 2.5 percentage points or less for ten out of the sixteen states. Among the five states, where the difference was large, lying in the range of 6 to 13 percentage points, the results of Bhattacharya *et. al.*, for two states were found to suffer from serious errors. If these two states are left out of the comparison, then the general (all consumer goods) index computed by Bhattacharya *et. al.*, differs only marginally from our index for the total urban population of each state. Also the rank correlation between the two sets of statewise indices is fairly high. These striking similarities between results of the two studies (for the general index relating to the total urban population) might deserve further investigation because of the surprising nature of this result in the face of the marked dissimilarities in the index construction and commodity coverage in the two studies.

The limitations and deficiencies, especially those relating to the price data sets used by us, have already been highlighted at a number of places in section 2. We do not wish to repeat them here. Nevertheless, the difficulties caused by non-standard units, variation in sizes of packages across states, averaging of qualities over different locations and consumption flows over the survey periods, etc., need to be borne in mind in interpreting the results presented in this study. It is hoped that statewise consumer price differentials (relative to all-India) for 1970-71 and 1983, as constructed by us in this study, should be useful in expressing the state-wise averages of per capita expenditures on broad item groups in terms of all-India urban prices. The availability of these relative price differentials, which can easily be updated to correspond to more recent years, should

assist the government and the research community in carrying out valid comparisons of the level of living across states. The need for such (valid) comparisons is obvious in the context of devolution of funds to the states by the Finance Commission and the Planning Authorities with reference to inter-state disparities in the level of living and poverty.

REFERENCES

Bhattacharya S.S., P.D. Joshi and A.B. Roychoudhary (1980), "Regional Consumer Price Indices based on NSS 28th Round Consumer Expenditure Data," *Sarvekshana,* Vol. III, No. 4, April.

Chatterjee G.S. and N. Bhattacharya (1974), "Between States Variation of Consumer Prices and Per Capita Household Consumption in Rural India," *Sankhya,* series C, Volume 36, parts 2 and 4.

Labour Bureau (1972), "Working Class Consumer Price Index Nembers of India—A Monograph," Vol. 1, published by the Controller of Publications, Ministry of Labour and Rehabilitation, Government of India.

Maitra Taresh (1959), "On the Variation in Prices between states of India," working paper (mimeographed) No. 175, Planning Division, *Indian Statistical Institute,* Calcutta.

Minhas, B.S., L.R. Jain, S.M. Kansal and M.R. Saluja (1987), "On the Choice of Appropriate Consumer Price Indices and Data Sets for Estimating the Incidence of Poverty in India," *Indian Economic Review,* Vol. XXII, No. 1, January-June 1987, pp 19-49.

Minhas B.S., L.R. Jain, S.M. Kansal and M.R. Saluja (1988), "Measurement of General Cost of Living for Urban India : All-India and Different States," *Sarvekshana,* Vol. XII, No. 1, July, pp 1-23.

Minhas B.S., S.M. Kansal and L.R. Jain (1989), "Incidence of Urban Poverty in Different States (1970-71 to 1983)," *Technical Report No.* 8902, January, Indian Statistical Institute, Delhi Centre.

Rath, Nilkantha (1973), "Regional Variation in Level and Cost of Living in Rural India 1961-62," *Arthavijanana,* Vol. XV, No. 4.

APPENDIX—TABLE A.1

CLASSIFICATION INTO GROUPS OF INDIVIDUAL CONSUMPTION ITEMS USED IN THE CONSTRUCTION OF STATE-SPECIFIC RELATIVE INDEX BASED ON MARKET OR NSS PRICES

Sl. No.	*Name of the item group*	*Individual items included in the index*	
		Market prices	*NSS prices*
	(1)	(2)	(3)
1.	Cereals and cereal products.	Rice, wheat, jowar and bajra	Rice, wheat, jowar and bajra
2.	Pulses and pulse products.	Arhar dal, gram dal, masur dal, moong dal and urad dal	Pulses and pulse products taken as a single item
3.	Oils and fats	Coconut oil, mustard oil, groundnut oil, gingelly oil and vanaspati	Coconut oil, mustard oil, groundnut oil, gingelly oil and vanaspati
4.	Meat, eggs and fish	Meat, eggs and fish	Meat, eggs and fish
5.	Milk and milk products	Milk and ghee	Milk and ghee
6.	Spices and salt	Chillies, turmeric and salt	Chillies, turmeric and salt
7.	Fruits and vegetables	Potato, brinjal, tomato, onions, banana and orange	Potato and banana
8.	Other food	Sugar, gur, tea leaf and tea cup	Sugar, gur, tea leaf, coffee powder and cooked meal
9.	Intoxicants, etc.	Pan leaf, supari, bidi, cigarettes, tobacco and country liquor	Pan leaf, supari, bidi, cigarettes, tobacco and country liquor
10.	Fuel and lifgt	Firewood, kerosene and match box	Kerosene and match box
11.	Clothing and footwear	Saree, dhoti, shirting and shoes	Mill cloth, handloom cloth and shoes
12.	Other non-food	Medicines, doctor's fee, school fee, school books, cinema, bus fare, toilet soap, cot, washing soap, washing charges, tailoring charges, housing, hair oils and barber charges	Medicines, doctor's fee, school fee, school books, cinema, bus fare, toilet soap, cot, washing soap, washing charges, tailoring charges, housing, hair oils and barber charges

APPENDIX TABLE A.2

STATEWISE GENERAL CONSUMER PRICE INDICES (RELATIVE TO ALL-INDIA) FOR TOTAL (CPITU) AND MIDDLE (CPIMU) URBAN POPULATION IN 1961-62 BASED ON THE USE OF NSS PRICES AND MARKET PRICES DATA

Sl. No.	Name of the state	CPITU						CPIMU					
		NSS Prices			Market Prices			NSS Prices			Market prices		
		L	P	F	L	P	F	L	P	F	L	P	F
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1.	A. Pradesh	93.3	88.7	91.0	98.0	93.9	95.9	101.0	97.0	99.0	99.8	96.2	97.9
2.	Assam	114.7	109.5	112.1	112.1	104.0	108.0	102.7	99.8	101.2	110.8	103.1	106.8
3.	Bihar	101.6	98.5	100.0	100.5	99.0	99.7	99.7	98.9	99.3	102.8	101.1	101.9
4.	Gujarat	111.1	106.2	108.6	113.1	107.4	110.2	111.7	108.1	109.9	115.1	107.9	111.4
5.	Haryana	103.8	99.7	101.7	93.1	91.3	92.2	92.0	91.3	91.7	96.0	93.3	94.6
6.	J & K	103.4	84.1	93.3	92.2	73.2	82.2	90.4	76.0	82.4	90.8	74.2	82.1
7.	Karnataka	99.6	96.4	98.0	96.7	95.2	96.0	98.9	96.8	97.9	97.9	95.5	96.7
8.	Kerala	105.2	95.0	100.0	99.8	90.1	94.9	109.6	94.4	102.3	104.4	93.5	98.9
9.	M. Pradesh	90.7	87.2	88.9	89.9	88.8	89.4	103.4	103.9	103.6	91.0	91.1	91.1
10.	Maharashtra	115.3	112.8	114.1	111.8	110.6	111.2	111.2	108.5	109.8	110.3	108.9	109.6
11.	Orissa	105.8	98.9	102.3	102.6	93.9	98.2	113.8	106.5	110.1	104.9	95.6	101.1
12.	Punjab	103.8	99.7	101.7	96.2	93.7	94.9	92.0	91.3	91.7	99.0	94.6	96.8
13.	Rajasthan	104.5	98.3	101.4	102.0	96.1	99.0	107.4	96.5	101.8	108.7	98.9	103.7
14.	Tamil Nadu	105.2	102.0	103.6	104.5	100.6	102.5	102.4	101.4	101.9	104.6	100.8	102.7
15.	U.P.	89.2	86.7	88.0	91.1	90.6	90.8	95.3	93.6	94.4	93.9	94.1	94.0
16.	West Bengal	106.8	105.8	106.3	108.1	107.4	107.8	101.8	100.9	101.4	108.0	107.7	107.0
17.	Delhi	120.8	109.0	114.7	117.7	111.2	114.4	117.2	106.7	111.8	115.4	109.2	112.2
18.	All India	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: *L*, *P* and *F* refer to index formula used.

APPENDIX-TABLE A.

STATEWISE URBAN PRICE INDICES; (RELATIVE TO ALL-IN

Sl. No.	*States*	*Cereals & prd.*	*Pulses & prd.*	*Oils & fats*	*Meat, fish eggs*	*Milk & prd.*	*Spices & salt*
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	A. Pradesh	99.6	89.8	96.4	79.7	91.2	76.1
2.	Assam	98.8	135.5	113.7	126.4	90.3	146.4
3.	Bihar	98.1	109.9	113.4	108.7	95.0	133.3
4.	Gujarat	117.7	111.7	97.5	106.9	98.6	84.6
5.	Haryana	100.3	78.8	101.6	117.4	95.2	141.5
6.	J & K	64.3	119.1	104.6	113.8	90.7	150.5
7.	Karnataka	102.4	102.6	104.0	83.2	79.0	87.9
8.	Kerala	99.8	120.9	102.7	51.7	122.0	103.0
9.	M. Pradesh	89.8	84.3	109.2	76.2	98.4	104.6
10.	Maharashtra	111.7	109.9	101.3	132.4	137.0	96.7
11.	Orissa	86.3	130.0	112.5	112.9	103.2	117.9
12.	Punjab	100.3	78.8	101.6	117.4	96.2	141.5
13.	Rajasthan	110.4	73.3	118.2	101.5	100.9	160.9
14.	Tamil Nadu	102.4	122.7	104.7	89.2	94.8	101.4
15.	U.P.	92.7	86.1	95.5	61.3	83.2	131.4
16.	West Bengal	103.1	104.4	97.8	137.1	103.2	99.0
17.	Delhi	115.6	89.8	103.2	108.8	96.6	127.8
18.	All India	100.0	100.0	100.0	100.0	100.0	100.0

Note: These indices refer to *F* index formula and are based on the use of the NSS prices.

APPENDIX-TABLE A.3

(TIVE TO ALL-INDIA) FOR VARIOUS ITEM GROUPS: 1961-62

Milk & d.	*Spices & salt*	*Fruits & Vege-tables*	*Other food*	*Intoxi-cants etc.*	*Fuel & light*	*Cloth-ing etc.*	*Other non-food*	*All food*	*All non-food*	*Gene-ral*
(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
91.2	76.1	91.0	88.7	68.1	88.3	92.4	89.9	92.9	87.9	91.0
90.3	146.4	110.2	105.8	101.2	125.9	125.7	122.2	106.3	120.8	112.1
95.0	133.3	71.0	109.0	103.3	98.4	126.7	95.8	99.1	102.3	100.0
98.6	84.6	89.7	114.0	128.6	103.2	123.4	108.5	107.1	111.0	108.6
95.2	141.5	110.6	97.8	130.9	128.1	135.3	82.6	100.6	103.5	101.7
90.7	150.5	119.9	124.4	107.0	162.1	125.0	74.9	90.0	98.9	93.2
79.0	87.9	103.2	100.2	102.5	92.5	103.9	99.8	97.1	99.5	98.0
122.0	103.0	185.3	99.2	105.3	121.6	129.7	80.5	103.2	94.7	100.0
98.4	104.6	93.6	96.5	100.4	93.6	72.1	81.0	93.3	82.7	88.9
137.0	96.7	121.2	105.7	99.4	89.7	107.4	122.4	115.0	112.8	114.1
103.2	117.9	110.0	119.9	134.8	132.6	107.5	94.2	101.2	103.9	102.3
96.2	141.5	110.6	97.8	130.9	128.0	135.3	92.6	100.5	103.5	101.7
100.9	160.9	95.5	91.8	115.8	116.7	97.7	87.7	104.6	96.3	101.4
94.8	101.4	101.6	96.6	97.6	109.5	133.7	103.2	100.4	108.4	103.6
83.2	131.4	78.5	98.7	106.0	101.8	84.6	79.0	89.6	85.5	88.0
103.2	99.0	111.9	104.5	119.8	90.7	74.6	117.4	106.7	105.8	106.3
96.6	127.8	103.4	95.5	122.2	111.3	101.7	141.8	105.4	127.9	114.7
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

SS prices.