INFLATIONARY IMPLICATIONS OF RESOURCE MOBILISATION THROUGH ADMINISTERED PRICE INCREASES

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PREFACE

The National Institute of Public Finance and Policy is an autonomous non-profit organisation whose primary functions are to undertake research, consultancy and training in the field of public economics and related policy.

The present study is the first of a new series being undertaken by the Institute. The series is envisaged as a three-year programme comprising several studies related to macro-policy and the dynamics of industrial policy and performance in the context of economic development.

The subject matter of the study, viz., the inflationary implications of a strategy of resource mobilisation through administered price increases in the public sector, was originally suggested by Shri Hiten Bhaya, Member, Planning Commission. Grateful thanks are due to him and to Dr. S. R. Hashim, Consultant at the Planning Commission, for the support extended to the study. We hope the findings of this study will be of some help in planning and policy making by government and also be of interest to academicians.

The Governing Body of the Institute does not bear responsibility for the views expressed in this report. This responsibility belongs to the authors, whose views are not necessarily shared by the Institute.

Amaresh Bagchi
Director

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The present study is the first of a series to be undertaken by the National Institute of Public Finance and Policy over a period of three years under its programme of research on Macroeconomics and Industrial Policy. We are grateful to Prof. Amaresh Bagchi, our Director, and to the sponsors for having made it possible for us to undertake the study.

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An earlier version of this study was presented at the National Seminar on Issues in Resource Mobilisation for Planning held at the Institute on April 24-25, 1987. We have benefited enormously from the discussions at the seminar and the comments of several participants. In particular, we would like to acknowledge our debt to Abhijit Sen, the main discussant of the paper, for having pointed out a serious computational error well in time so as to enable us to present the corrected results at the seminar.

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INFLATIONARY IMPLICATIONS OF RESOURCE MOBILISATION THROUGH ADMINISTERED PRICE INCREASES

1. Introduction

1.1 The success of the Seventh Plan depends rather crucially on a very large increase in the contribution of public sector undertakings (PSUs) towards the financing of the plan. The actual contribution of central and state PSUs, including additional resource mobilisation, was about Rs 18.634 crore or roughly 17 per cent of the total public sector outlay of Rs 110,821 crore in the Sixth Plan. This share has been almost doubled in the Seventh Plan to about 33 per cent of a total public sector plan outlay of Rs 180,000 crore, amounting to around Rs 59,000 crore (Government of India, 1985b, Chapter 4).

1.2 If we take only the central sector plan, including the plan for Union territories and assistance to states, the dependence on PSU surpluses turns out to be even greater. The year-wise projections of the Long Term Fiscal Policy (LTFP) indicate that the share of all domestic borrowings, including the budget deficit, is to be brought down from around 63 per cent of the central sector outlay in the initial year of the plan (1985-86) to around 42 per cent in the terminal year (1989-90). The share of net capital inflow from abroad is projected to rise from 12 per cent to 14 per cent over the same period while the share of public sector savings is expected to go up from about 25 per cent to as much as 43 per cent (Government of India, 1985a, Table 3). Virtually this entire amount will have to be financed from PSU surpluses since the uncontrollable growth of non-plan expenditure, especially on defence, the payment of interest on public debt, administration and the food and fertiliser subsidies has left a negligible or even negative balance from current revenue in recent years and this situation is unlikely to change in the near future.

1.3 How are the PSUs supposed to generate these huge surpluses? The Seventh Plan document refers to improvements in productivity and reduced costs. However, the increases in PSU surpluses during the Sixth Plan period

largely came from the public sector oil companies because of sharp increases in domestic crude production and high oil prices in the world market. The LTFP document clearly states that there is little prospect for similar growth during the Seventh Plan period (Government of India, 1985a, pp. 8-9). It is therefore quite likely that the government will have to resort to substantial increases in the administered prices of public sector products as a means of financing the plan. Indeed the Deputy Chairman of the Planning Commission is reported to have stated quite frankly at a meeting of the Indian Chamber of Commerce in Calcutta last year that there are no `magic solutions' for improving public sector efficiency, that this can happen only gradually and that therefore the government had no alternative but to increase administered prices.[1]

1.4 This strategy of mobilising resources for financing the plan raises a whole range of questions regarding macro-economic effects on output and employment, the allocative and distributive effects and the normative principles for setting administered prices. Some of these questions were raised in the policy paper on administered prices circulated by the Government last year (Government of India, 1986a). However, in the present paper we have confined ourselves to only one aspect of this resource mobilisation strategy, namely, the inflationary implications of administered price increases.[2]

1.5 A computable price information model based on the 50X50 Seventh Plan input-output matrix (Government of India, 1986a) has been developed to measure the inflationary impact of administered price increases. Similar price formation models have been used earlier to measure the impact of energy price increases (Rangarajan, Sah and Reddy, 1981; Sastry, 1982) and more recently to measure the impact of administered price increases in general (Gupta and Srinivasan, 1984; Ramachandra Rao, 1984). These earlier exercises were mostly concerned with measuring the contribution of some specific administered price increases to the actual rate of inflation in some past period. By slightly modifying the model in the present exercise we have been able to derive the standard response elasticities of individual commodity prices and the general price level with respect to price changes of nine major price-administered commodities. These response elasticities can of course be used to measure the contribution of particular administered price increases to actual inflation in some past period as in the earlier exercises. But they can also be used to predict the inflationary impact of any administered price increase during the current plan period.[3]

1.6 Furthermore, the earlier exercises were restricted to measuring only the first-round effect (direct and indirect) of an increase in some administered price (or prices) on the general level of prices. However, if wages are either wholely or partially indexed, then the initial rise in the general price level induced by the administered price increase will itself induce a second-round increase via increases in wage costs and this in turn will induce a third-round increase and so on until the system reaches a fixed point; rather like the round-by-round effects of the Keynes-Kahn employment (output) multiplier following an initial increase in aggregate demand.[4] In the present exercise these feedback effects have been incorporated in the model and it turns out that the total response elasticities are much larger than the partial elasticities thrown up by the first-round effect.

2. The Model

2.1 Apart from the usual assumption of fixed coefficients Leontief technology common to all input-output models, we have made one additional assumption which should be explained at the very outset. The model assumes fix-price markets which are cleared through quantity rather than price adjustments. Prices are fixed as a mark-up over prime costs. The assumption of fix-price markets for manufactured goods is now a standard feature of most post-Keynesian macro models and is supported by a long line of empirical research starting with the Oxford studies on the price mechanism [Wilson and Andrews (ed.) 1951]. It is also supported by some research on industrial price formation in India.[5] However, recent macro models developed in India and elsewhere typically partition the commodity market into two separate fix-price and flex-price markets since the fix-price assumption is less appropriate for agricultural commodities, even though prices of major agricultural commodities in India like wheat, rice and cotton are fixed and maintained on a cost-plus basis by price support operations of the government.[6]

2.2 The assumption of a fixed mark-up over prime costs implies that all input price increases are passed on to buyers. However, the mark-up can be fixed either in absolute terms or as a proportion of costs. The input-output matrix-based pricing models cited earlier were all based on the assumption of a mark-up fixed in absolute terms which implies a secular decline in profit margins if costs and prices are rising over time. This is not realistic for Indian conditions and we have accordingly assumed margins

to be fixed as a proportion of costs, though the margin includes provisions for commodity taxes, depreciation, interest charges, tax on profits and other overheads.

2.3 To the extent that input cost increases are absorbed either through increased efficiency or thinner margins over cost, and to the extent that markets get cleared through both quantity and price adjustments following an initial rise in prices, the actual inflationary impact will be dampened and somewhat less compared to the estimates thrown up by our model. We have also not explicitly accounted for the possibility that other things being the same, additional resource mobilisation through administered price increases would imply less deficit financing and less inflationary pressure on that account. The results thrown up by the model should therefore be interpreted as a sort of upper bound estimate of the inflationary impact of administered price increases. Pricing policies which appear not to be very inflationary in terms of the model may therefore be taken to be non-inflationary in the real world.

2.4 Consider an economy with M = (m+n) commodity groups or sectors where the prices of m sectors' outputs are determined in the market. The prices of the rest of the sectors' outputs are regulated or administered exogenously by the government. Henceforth, we shall describe the former as non-administered sectors and the latter as administered sectors. Let I_m represent the index set of all non-administered sectors and I_n that of all administered sectors with $I_M = I_m \cup I_n$ being the set (1,...., M). Given exogenous shocks in the form of changes in some or all administered prices, our purpose is to study the effects on individual prices in the rest of the economy and the general level of prices.

2.5 From the M X M commodity X industry value coefficients matrix we pick up two of its sub-matrices. One is the m x m matrix of non-administered sector inputs going into the production of the same sectors' outputs. The other is a rectangular n x m matrix consisting of administered inputs used for production of non-administered outputs. Denote the former matix by A and the latter by $\bar{A}$. If only one sector's price is fixed exogenously, i.e., if n=1, $\bar{A}$ is a 1x(M-1) vector of this sector's output going as input into the production of all other sectors' outputs. If m=M, the model reduces to that of a competitive economy.

2.6 For the non-administered sectors' outputs the price formation equations are given by

$$p_j = \sum_{i \epsilon I_M} a_{ij} p_i + l_j w_j + r_j p_j, \; j \epsilon I_m \qquad (1)$$

where

p_j is the per unit price of commodity j,

a_{ij} is the requirement of the ith input per unit of the jth output.

l_j is the labour requirement per unit of jth output.

w_j is the prevailing wage rate in industry j,

and r_j represents the fixed fraction (margin) of jth output price which covers the industry's profits, indirect taxes, interest charges, depreciation, profits tax and other overheads.

Equation (1) can be rewritten as

$$p_j = s_j \left(\sum_{i \epsilon I_M} a_{ij} p_i + l_j w_j \right) \qquad (2)$$

where

$$s_j = 1/(1 - r_j), \quad j \epsilon I_m$$

2.7 Given an external shock in the form of changed administered prices, the changes being denoted by $\overline{\Delta p}_i$, $i \in I_n$, the change in other prices is given by the system of equations

$$\Delta p_j = s_j \left(\sum_{i \in I_m} a_{ij} \Delta p_i + \sum_{i \in I_n} a_{ij} \overline{\Delta p}_i + l_j \Delta w_j \right),$$

$$j \in I_m \qquad (3)$$

where w_j represents the change in the jth wage rate. The percentage change in these prices is then

$$\frac{\Delta p_j}{p_j} = \frac{\sum_{i \in I_m} a_{ij} \Delta p_i + \sum_{i \in I_n} a_{ij} \overline{\Delta p}_i + l_j \Delta w_j}{\sum_{i \in I_M} a_{ij} p_i + l_j w_j},$$

$$j \in I_m \qquad (4)$$

Denoting the denominator on the right hand side by $\bar{a}_j$, (4) can be written as

$$\frac{\Delta p_j}{p_j} = \sum_{i \in I_m} \frac{a_{ij} p_i}{\bar{a}_j} \frac{\Delta p_i}{p_i} + \sum_{i \in I_n} \frac{a_{ij} p_i}{\bar{a}_j} \frac{\overline{\Delta p}_i}{p_i} +$$

$$\frac{l_j w_j}{\bar{a}_j} \frac{\Delta w_j}{w_j}, \qquad j \in I_m \qquad (5)$$

or,

$$\dot{p}_j = \sum_{i \in I_m} b_{ij}\,\dot{p}_i + \sum_{i \in I_n} b_{ij}\,\bar{\dot{p}}_i + b_{wj}\dot{w}_j, \quad j \in I_m \tag{6}$$

where

$$\dot{p}_i = \frac{\Delta p_i}{p_i}, \quad i \in I_m \qquad \bar{\dot{p}}_i = \frac{\overline{\Delta p_i}}{p_i}, \quad i \in I_n$$

$$\dot{w}_j = \frac{\Delta w_j}{w_j}, \quad j \in I_m$$

$$b_{ij} = \frac{a_{ij}p_i}{\bar{a}_j}, \quad i \in I_M, \quad j \in I_m$$

$$b_{wj} = \frac{l_j w_j}{\bar{a}_j}, \quad j \in I_m$$

$$\sum_{i \in I_M} b_{ij} + b_{wj} = 1, \quad j \in I_m$$

and $b_{ij} > 0, \quad i \in I_M, \quad j \in I_m$

Note here that the dependent variable is now independent of the numerical values of the profit margins.

Finally, since a change in the general level of prices (P) is a weighted sum of individual price changes, we have

$$\dot{P} = \sum_{i \in I_m} \alpha_i \dot{p}_i + \sum_{i \in I_n} \alpha_i \dot{\bar{p}}_i \qquad (7)$$

where

$$\alpha_i \geq 0 \text{ for } i \in I_M, \sum_{i \in I_M} \alpha_i = 1$$

and the input-output coefficients are defined such that $p_i = 1$ initially for $i \in I_M$.

2.8 So far changes in wage rates have been treated as exogenous to the model. In fact if wages are wholely or partially indexed then a change in the general price level P will induce a change in money wage rates w leading to further changes in p_i's and therefore P itself. To take account of these feedback effects the model must be extended. Letting η_j denote the response elasticity of money wages in sector j with respect to the general level of prices P the system of equations (6) can now be rewritten as

$$\dot{p}_j = \sum_{i \in I_m} b_{ij} \dot{p}_i + \sum_{i \in I_n} b_{ij} \dot{\bar{p}}_i + b_{wj} \eta_j \dot{P}, \quad j \in I_m \qquad (8)$$

Notice that we have here isolated and picked up only that part of a change in money wages which is induced by a change in the general level of prices. Wage rate changes attributable to other exogenous factors have been set equal to zero.

Using equation (7) and rearranging terms, the system of equations (8) can be rewritten as

$$\dot{p}_j = \sum_{i \in I_m} (b_{ij} + b_{wj}\eta_j \alpha_i)\ p_i + \sum_{i \in I_n} (b_{ij} + b_{wj}\eta_j \alpha_i)\ \dot{\bar{p}}_i, \qquad j \in I_m \qquad (9)$$

Given any administered price change $\dot{\bar{p}}_i$, $i \in I_n$, we can now solve this system of linear equations for $\dot{p}_j$, $j \in I_m$ and hence the percentage change in the general level of prices $\dot{P}$.

The response elasticities of the non-administered prices

$$(\dot{p}_j/\dot{\bar{p}}_i), \qquad i \in I_n, \quad j \in I_m$$

and of the general price level

$$(\dot{P}/\dot{\bar{p}}_i), \qquad i \in I_n$$

are partial when the model is run with $\eta_j = 0$ for all j. When the model is run with η_j set to its actual estimated value, we get the total response elasticity.[7]

3. The Results

3.1 Administered Price Contribution to Past Inflation

3.1.1 The formulae for computing price response elasticities given in the preceding section can now be employed to estimate how much of past inflation is attributable to increases in the selected administered prices. Computations for a short period from 1979-80 to 1984-85 and a longer period from 1970-71 to 1983-84 have been reported in Table 1.

TABLE 1

Estimated Contribution of Administered Price Increases to Past Inflation

Industry			Percentage change in 1984-85 over 1979-80£	Percentage change in 1983-84 over 1970-71£
1. Coal and Lignite			116	829
2. Crude Oil and Gas			26	1640
3. Petroleum Products			76	438
4. Fertilisers			57	168
5. Cement			102	322
6. Iron and Steel			72	313
7. Non-Ferrous Metals			52	242
8. Rail Transport Service			101	231
9. Electricity			84	288
Wholesale Price Index (WPI)	Total Increase		56	216
	Administered Price Induced Increase	First Round Impact*	22 (39)	107 (50)
		Total Impact*	27 (48)	132 (61)

Notes: £ For all administered items except rail transport, the price changes are estimated from the wholesale price index. For rail transport the implicit deflator in the National Accounts Statistics has been used.

* Figures in parentheses indicate percentage share of total increase in wholesale price index. The first-round impact is based on partial elasticities and the total impact is based on total elasticities.

3.1.2 During the one and a half decades since 1970-71 the price increases were of course dominated by fossil fuel and related prices induced by the two oil shocks. Crude oil and gas prices increased by over sixteen times, coal and lignite prices over eight times and petroleum products over four times. Other administrative prices also increased at rates greater than the average rate of increase of the general price level (WPI) which increased 2.16 times over this entire period. Our model estimates show that the first-round impact of our nine administered price increases accounted for around 50 per cent of the general inflation of this period while the total impact of these administered price increases accounted for around 61 per cent. The estimates for the shorter period of 1979-80 to 1984-85 are somewhat smaller, the first-round and total effects working out to 39 per cent and 48 per cent respectively.

3.1.3 The Finance Ministry discussion paper cited earlier had conjectured that the contribution of all administered price increases to total inflation during the period 1970-71 to 1985-86 was around 24 per cent.[8] However, we have now seen that about 50 per cent is the contribution of just the first-round impact of only nine price-administered commodities.[9] When we include the feedback effects via money wage rate changes, etc., the total contribution of just these nine commodities goes up to 60 per cent. Clearly the total impact of all administered prices would be even larger.[10]

3.1.4 Our estimates of the contribution of administered prices to past inflation should be treated cautiously because we have used short-run elasticity of wages with respect to the general price level to estimate administered price contributions to past inflation for rather long periods. In fact, as estimated by Chaudhuri and Chaudhuri (1986), the elasticity of wages with respect to lagged prices could be negative. See, e.g., equations (14) and (17) of their paper. Furthermore, factors other than prices have been treated as residual in our specification of the wage equation. But these limitations notwithstanding, the essential point to note is that actual calculations indicate that the contribution of administered price increases to past inflation has been much larger than that conjectured in the official discussion paper.

3.2 Partial and Total Response Elasticities

3.2.1 Do the above results necessarily imply that the size of the Seventh Plan can be maintained through a strategy of raising administered prices only at the expense of a high rate of inflation? To answer this question, the model has been run to estimate the partial and total response elasticities of non-administered commodity prices and the general price level with respect to each of the nine commodity groups, i.e., crude oil and gas, petroleum products, coal and lignite, electricity, fertilisers, cement, iron and steel, non-ferrous metals and rail transport services.[11] Response elasticities have also been computed for simultaneous price changes in all nine commodity groups together and for a few combinations of these groups. In each exercise when the price of one or more of these commodity groups is changed exogenously it is assumed that other administered prices in these groups mimic the behaviour of completely non-administered prices, i.e., that they too pass on the associated increase in costs in the form of higher prices.

(a) Crude oil and gas

3.2.2 The estimated response elasticities with respect to changes in the administered price of crude oil and gas have been presented in Table 2. The first-round elasticity of the general price level with respect to oil prices works out to 0.11. The total elasticity including feedback effects via money wage increases works out to 0.14. In other words, an increase of say 20 per cent in crude oil and gas prices should lead to an extra general inflation rate of 2.8 per cent.

3.2.3 At the level of individual commodities, apart from the obvious case of petroleum products, the prices of five product groups are found to be relatively sensitive to oil and gas prices, i.e., plastics, synthetic fibre resin, transport services other than rail transport, fertilisers and iron ore. The first two groups are easily explained as these are downstream products of the petro-chemical industry. The case of transport services other than rail transport is also obvious. The fertiliser and iron ore response elasticities are less easily explained but it turns out that in their cases the effects work their way through petroleum products which, as seen from the Seventh Plan I - O table, are by far the single most important input into their production. In the case of all other product groups such as agricultural products, agro-based manufactures and the metal-based engineering industries, the total elasticity is less than 0.20.

TABLE 2

Price Response Elasticities for Changes in the Administered Price of Crude Oil and Gas

Industry	Elasticities Partial	Total	Industry	Elasticities Partial	Total
1. Paddy	0.06	0.09	26. Rubber Products	0.04	0.07
2. Wheat	0.09	0.12	27. Plastics	0.21	0.29
3. Other Cereals	0.05	0.08	28. Petroleum Products	0.88	0.88
4. Pulses	0.03	0.07	29. Coal Tar Products	0.08	0.11
5. Fibre Crops	0.05	0.08	30. Fertilisers	0.44	0.46
6. Tea and Coffee	0.03	0.07	31. Pesticides	0.05	0.09
7. Other Crops	0.03	0.06	32. Synthetic Fibre Resin	0.20	0.23
8. Animal Husbandry	0.02	0.06	33. Other Chemicals	0.08	0.11
9. Forestry & Logging	0.03	0.07	34. Cement	0.09	0.13
10. Fishing	0.02	0.05	35. Other Non-Metallic Mineral Products	0.09	0.12
11. Coal and Lignite	0.03	0.07			
12. Crude Oil and Gas	Price Exogenously	Fixed	36. Iron and Steel	0.07	0.10
			37. Non-Ferrous Metals	0.11	0.14
13. Iron Ore	0.17	0.20	38. Non-Electrical Machinery	0.06	0.09
14. Other Metallic Minerals	0.06	0.10	39. Electrical Machinery	0.06	0.09
15. Non-Metallic and Minor Minerals	0.07	0.11	40. Rail Equipment	0.08	0.11
			41. Motor Vehicles	0.08	0.12
15. Sugar	0.05	0.08	42. Other Transport Equipment	0.07	0.11
17. Khandsari and Boora	0.07	0.10			
18. Other Food and Beverages	0.05	0.08	43. Communication and Electronic Equipment	0.06	0.09
19. Cotton Textiles	0.06	0.09	44. Other Manufacturing	0.06	0.09
20. Art Silk & Synthetic Fibre Textiles	0.10	0.13	45. Rail Transport Services	0.11	0.14
21. Woollen Textiles	0.05	0.09	46. Other Transport Services	0.27	0.30
22. Other Textiles	0.04	0.07			
23. Wood Based Products	0.05	0.08	47. Electricity	0.16	0.19
24. Paper and Paper Based Products	0.09	0.12	48. Construction	0.07	0.10
			49. Communication	0.03	0.07
25. Leather and Leather Products	0.04	0.08	50. Other Services	0.03	0.06

Wholesale Price Index

Partial Elasticity: 0.11 Total Elasticity: 0.14

(b) Petroleum Products

3.2.4 The aggregate partial and total elasticities with respect to changes in the price of petroleum products match exactly with those of crude oil and gas; these being 0.11 and 0.14 respectively. As seen from Table 3, the individual commodities with high price sensitivity to petroleum products' price are again plastics, synthetic fibre resin, transport services other than rail transport, fertilisers and iron ore. The explanations given in the previous paragraph once again apply here.

(c) Coal and Lignite

3.2.5 The inflationary impact of coal and lignite price increase is much lower than that of petroleum price increases as shown in Table 4. For the general level of prices the partial elasticity is found to be 0.05 whereas the total elasticity is 0.07, implying that a 20 per cent increase in coal and lignite price would trigger an increase of about 1.4 per cent in the general price level if the feedback effects via money wage increases are taken into account. The main contributory commodities for this are coal tar products, cement and electricity. The case of coal tar products is obvious. The high response elasticities of the other two commodity prices follow from the fact that coal and lignite form a major input for the production of cement and the single most important input for electricity production.

(d) Electricity

3.2.6 Electricity prices have a relatively high inflationary potential among the nine administered prices analysed in our model, with the general price level having a total elasticity of 0.11 as shown in Table 5. In other words, an increase in electricity prices of say 20 per cent would give us an extra inflation rate of 2.2 per cent.

3.2.7 Among individual commodities the prices of metallic minerals other than iron ore, art silk and synthetic textiles, paper and paper products, synthetic fibre resin, chemicals, non-ferrous metals, iron and steel, cement, fertilisers, plastics and rail equipment are most sensitive to electricity tariffs. Notice that these are industries with a varied raw material base including agro-based, metal-based and petro-chemical-

TABLE 3

Price Response Elasticities for Changes in the Administered Price of Petroleum Products

Industry	Elasticities Partial	Total	Industry	Elasticities Partial	Total
1. Paddy	0.06	0.10	26. Rubber Products	0.04	0.08
2. Wheat	0.09	0.12	27. Plastics	0.24	0.26
3. Other Cereals	0.05	0.09	28. Petroleum Products	Price Exogenously	Fixed
4. Pulses	0.03	0.07	29. Coal Tar Products	0.08	0.12
5. Fibre Crops	0.05	0.08	30. Fertilisers	0.41	0.43
6. Tea and Coffee	0.03	0.06	31. Pesticides	0.06	0.09
7. Other Crops	0.03	0.07	32. Synthetic Fibre Resin	0.22	0.25
8. Animal Husbandry	0.02	0.06	33. Other Chemicals	0.09	0.12
9. Forestry & Logging	0.03	0.07	34. Cement	0.10	0.13
10. Fishing	0.02	0.06	35. Other Non-Metallic Mineral Products	0.09	0.13
11. Coal and Lignite	0.03	0.07	36. Iron and Steel	0.07	0.11
12. Crude Oil and Gas	0.08	0.11	37. Non-Ferrous Metals	0.11	0.14
13. Iron Ore	0.19	0.22	38. Non-Electrical Machinery	0.06	0.10
14. Other Metallic Minerals	0.07	0.10	39. Electrical Machinery	0.06	0.10
15. Non-Metallic and Minor Minerals	0.08	0.11	40. Rail Equipment	0.09	0.12
16. Sugar	0.05	0.08	41. Motor Vehicles	0.09	0.12
17. Khandsari and Boora	0.07	0.11	42. Other Transport Equipment	0.08	0.11
18. Other Food and Beverages	0.05	0.08	43. Communication and Electronic Equipment	0.06	0.10
19. Cotton Textiles	0.06	0.09	44. Other Manufacturing	0.06	0.09
20. Art Silk & Synthetic Fibre Textiles	0.10	0.14	45. Rail Transport Services	0.12	0.15
21. Woollen Textiles	0.05	0.09	46. Other Transport Services	0.31	0.34
22. Other Textiles	0.04	0.07	47. Electricity	0.15	0.18
23. Wood Based Products	0.05	0.09	48. Construction	0.07	0.11
24. Paper and Paper Based Products	0.09	0.12	49. Communication	0.04	0.07
25. Leather and Leather Products	0.05	0.08	50. Other Services	0.03	0.07

Wholesale Price Index

Partial Elasticity: 0.11 Total Elasticity: 0.14

TABLE 4

Price Response Elasticities for Changes in the Administered Price of Coal and Lignite

Industry	Elasticities Partial	Total	Industry	Elasticities Partial	Total
1. Paddy	0.01	0.03	26. Rubber Products	0.02	0.04
2. Wheat	0.04	0.06	27. Plastics	0.06	0.08
3. Other Cereals	0.01	0.03	28. Petroleum Products	0.03	0.04
4. Pulses	0.01	0.03	29. Coal Tar Products	0.50	0.51
5. Fibre Crops	0.01	0.03	30. Fertilisers	0.11	0.12
6. Tea and Coffee	0.01	0.03	31. Pesticides	0.04	0.05
7. Other Crops	0.01	0.02	32. Synthetic Fibre Resin	0.07	0.09
8. Animal Husbandry	0.01	0.02	33. Other Chemicals	0.06	0.08
9. Forestry & Logging	0.01	0.03	34. Cement	0.19	0.20
10. Fishing	0.00	0.02	35. Other Non-Metallic Mineral Products	0.07	0.09
11. Coal and Lignite	Price Exogenously Fixed		36. Iron and Steel	0.11	0.13
12. Crude Oil and Gas	0.02	0.04	37. Non-Ferrous Metals	0.12	0.13
13. Iron Ore	0.03	0.04	38. Non-Electrical Machinery	0.08	0.09
14. Other Metallic Minerals	0.06	0.07	39. Electrical Machinery	0.06	0.08
15. Non-Metallic and Minor Minerals	0.02	0.04	40. Rail Equipment	0.08	0.09
16. Sugar	0.02	0.03	41. Motor Vehicles	0.07	0.08
17. Khandsari and Boora	0.02	0.04	42. Other Transport Equipment	0.05	0.07
18. Other Food and Beverages	0.02	0.04	43. Communication and Electronic Equipment	0.05	0.06
19. Cotton Textiles	0.04	0.06	44. Other Manufacturing	0.06	0.07
20. Art Silk & Synthetic Fibre Textiles	0.07	0.08	45. Rail Transport Services	0.09	0.11
21. Woollen Textiles	0.04	0.05	46. Other Transport Services	0.01	0.03
22. Other Textiles	0.03	0.04	47. Electricity	0.37	0.38
23. Wood Based Products	0.04	0.05	48. Construction	0.06	0.08
24. Paper and Paper Based Products	0.07	0.09	49. Communication	0.01	0.03
25. Leather and Leather Products	0.02	0.04	50. Other Services	0.02	0.03

Wholesale Price Index

Partial Elasticity: 0.05 Total Elasticity: 0.07

TABLE 5

Price Response Elasticities for Changes in the Administered Price of Electricity

Industry	Elasticities Partial	Total	Industry	Elasticities Partial	Total
1. Paddy	0.03	0.05	26. Rubber Products	0.04	0.07
2. Whoat	0.09	0.11	27. Plastics	0.15	0.17
3. Other Cereals	0.02	0.05	28. Petroleum Products	0.05	0.08
4. Pulses	0.02	0.04	29. Coal Tar Products	0.12	0.15
5. Fibre Crops	0.03	0.06	30. Fertilisers	0.15	0.18
6. Tea and Coffee	0.02	0.04	31. Pesticides	0.08	0.10
7. Other Crops	0.01	0.04	32. Synthetic Fibre Resin	0.16	0.18
8. Animal Husbandry	0.01	0.04	33. Other Chemicals	0.13	0.16
9. Forestry & Logging	0.02	0.05	34. Cement	0.19	0.21
10. Fishing	0.01	0.03	35. Other Non-Metallic Mineral Products	0.10	0.13
11. Coal and Lignite	0.11	0.14	36. Iron and Steel	0.17	0.19
12. Crude Oil and Gas	0.04	0.06	37. Non-Ferrous Metals	0.25	0.27
13. Iron Ore	0.06	0.08	38. Non-Electrical Machinery	0.13	0.15
14. Other Metallic Minerals	0.15	0.17	39. Electrical Machinery	0.11	0.14
15. Non-Metallic and Minor Minerals	0.05	0.08	40. Rail Equipment	0.14	0.16
16. Sugar	0.03	0.06	41. Motor Vehicles	0.11	0.14
17. Khandsari and Boora	0.04	0.07	42. Other Transport Services	0.10	0.12
18. Other Food and Beverages	0.04	0.06	43. Communication and Electronic Equipment	0.09	0.11
19. Cotton Textiles	0.10	0.12	44. Other Manufacturing	0.10	0.13
20. Art Silk & Synthetic Fibre Textiles	0.15	0.17	45. Rail Transport Services	0.09	0.11
21. Woollen Textiles	0.08	0.11	46. Other Transport Services	0.02	0.05
22. Other Textiles	0.06	0.09	47. Electricity	Price nously	Exoge- Fixed
23. Wood Based Products	0.08	0.11	48. Construction	0.08	0.11
24. Paper and Paper Based Products	0.16	0.18	49. Communication	0.02	0.05
25. Leather and Leather Products	0.04	0.07	50. Other Services	0.03	0.05

Wholesale Price Index

Partial Elasticity: 0.08 Total Elasticity: 0.11

based products. What they have in common is that many of them are processing industries which are typically highly energy-intensive. Notice finally that while most crops have a total price response elasticity of around 0.04 or 0.05, wheat has an elasticity of 0.11, making it comparable to many manufactured products. Presumably this reflects the much greater consumption of electricity for pump sets and agricultural machinery in wheat production (particularly in the northern wheat-belt) than in most other crops.

(e) Fertilisers

3.2.8 The partial response elasticity with respect to fertiliser price increases turns out to be 0.04 for the general price level while the total response elasticity works out to 0.05 as shown in Table 6. In other words, an increase of around 20 per cent in the price of fertilisers would generate an extra inflation rate of 0.8 per cent in the first round or about 1 per cent if subsequent feedback effects via money wage increases, etc., are also taken into account.

3.2.9 Since fertilisers directly enter into the production of only agricultural products and indirectly into the production of some agro-based products, the response elasticities of almost all the other individual products are negligible. Even for most of the agro-based products the total response elasticities are quite low, i.e., less than 0.05. Among agricultural products the total price response elasticity is predictably the highest in the case of wheat (0.11), followed by rice (0.07) and fibre and plantation crops like cotton, jute, tea and coffee, etc., (0.06). It should be noted however that if the general level of prices was tracked in terms of a consumer price index like, say, the industrial or agricultural workers consumer price index, then the inflationary impact of fertiliser price increases would be higher since foodgrains like wheat and rice carry a higher weight in these consumer price indices as compared to the wholesale price index. This issue is discussed further below.

(f) Cement

3.2.10 Cement price increases turn out to have the lowest inflationary potential among all the nine administered prices considered in this exercise. In fact both the partial and total response elasticities of the

TABLE 6

Price Response Elasticities for Changes in the Administered Price of Fertilisers

Industry	Elasticities Partial	Total	Industry	Elasticitie Partial	Tot
1. Paddy	0.06	0.07	26. Rubber Products	0.00	0.0
2. Wheat	0.10	0.11	27. Plastics	0.01	0.0
3. Other Cereals	0.03	0.05	28. Petroleum Products	0.00	0.0
4. Pulses	0.02	0.03	29. Coal Tar Products	0.00	0.0
5. Fibre Crops	0.05	0.06	30. Fertilisers	Price nously	Exoge Fixe
6. Tea and Coffee	0.04	0.06	31. Pesticides	0.00	0.0
7. Other Crops	0.04	0.05	32. Synthetic Fibre Resin	0.01	0.0
8. Animal Husbandry	0.02	0.03	33. Other Chemicals	0.01	0.0
9. Forestry & Logging	0.00	0.01	34. Cement	0.00	0.0
0. Fishing	0.00	0.01	35. Other Non-Metallic Mineral Products	0.00	0.0
1. Coal and Lignite	0.00	0.01	36. Iron and Steel	0.00	0.0
2. Crude Oil and Gas	0.00	0.01	37. Non-Ferrous Metals	0.00	0.0
3. Iron Ore	0.00	0.01	38. Non-Electrical Machinery	0.00	0.0
4. Other Metallic Minerals	0.00	0.01	39. Electrical Machinery	0.00	0.01
5. Non-Metallic and Minor Minerals	0.00	0.01	40. Rail Equipment	0.00	0.01
6. Sugar	0.02	0.04	41. Motor Vehicles	0.00	0.01
7. Khandsari and Boora	0.02	0.03	42. Other Transport Equipment	0.00	0.01
8. Other Food and Beverages	0.03	0.04	43. Communication and Electronic Equipment	0.00	0.01
9. Cotton Textiles	0.02	0.03	44. Other Manufacturing	0.00	0.01
0. Art Silk & Synthetic Fibre Textiles	0.01	0.02	45. Rail Transport Services	0.00	0.01
1. Woollen Textiles	0.01	0.02	46. Other Transport Services	0.00	0.01
2. Other Textiles	0.01	0.02	47. Electricity	0.00	0.01
3. Wood Based Products	0.00	0.01	48. Construction	0.00	0.02
4. Paper and Paper Based Products	0.00	0.02	49. Communication	0.00	0.01
5. Leather and Leather Products	0.01	0.02	50. Other Services	0.00	0.01

Wholesale Price Index

Partial Elasticity: 0.04 Total Elasticity: 0.05

general price level work out to 0.01 corrected upto the second decimal place, as shown in Table 7. This is again not surprising since cement production is almost entirely used up in construction and the production of some non-metallic mineral products. The total price response elasticities for these two sectors are 0.08 and 0.06 respectively. For all other sectors the response elasticities are either marginal or zero.

(g) Iron and Steel

3.2.11 Out of the nine price-administered products considered, iron and steel has the second highest inflationary potential after petroleum. The general price level has a partial elasticity of 0.09 and a total elasticity of 0.12 with respect to steel prices as shown in Table 8. That is to say that if iron and steel prices were to go up by 20 per cent this would generate an extra inflation rate of about 2.4 per cent, taking into account the feedback effects of money wage increases.

3.2.12 Among individual commodities, construction and especially all the engineering products are very price sensitive to iron and steel prices; the elasticities ranging from 0.19 for communication and electronic equipment to 0.49 for non-electrical machinery. The elasticities for rail equipment, motor vehicles and other transport equipment are also very high. Next come mining and agro-based, chemical-based or petro-chemical-based products all of which are much less price sensitive to iron and steel price hikes than the engineering products; the elasticities here being clustered in the range of 0.06 to 0.10. Finally we have the agricultural products with response elasticities below 0.07.

(h) Non-ferrous metals

3.2.13 This is yet another group with a relatively low inflationary potential; the partial and total price response elasticities of the general price level being 0.03 and 0.04 respectively. In other words, if the price of non-ferrous metals is raised by, say, 20 per cent the total impact on the general price level is only 0.8 per cent. The commodity groups with comparatively high price sensitivity to changes in the price of non-ferrous metals are iron and steel, electrical machinery, rail equipment, communication and electronic equipment with the elasticities ranging from 0.08 to 0.11 as shown in Table 9. This can be explained from the fact that

TABLE 7

Price Response Elasticities for Changes in the Administered Price of Cement

Industry	Elasticities Partial	Total	Industry	Elasticities Partial	Total
1. Paddy	0.00	0.01	26. Rubber Products	0.00	0.01
2. Wheat	0.00	0.01	27. Plastics	0.01	0.01
3. Other Cereals	0.00	0.01	28. Petroleum Products	0.01	0.01
4. Pulses	0.00	0.01	29. Coal Tar Products	0.01	0.01
5. Fibre Crops	0.00	0.01	30. Fertilisers	0.01	0.01
6. Tea and Coffee	0.00	0.01	31. Pesticides	0.01	0.01
7. Other Crops	0.00	0.00	32. Synthetic Fibre Resin	0.01	0.01
8. Animal Husbandry	0.00	0.01	33. Other Chemicals	0.01	0.01
9. Forestry & Logging	0.01	0.01	34. Cement	Price Exogenously	Fixed
10. Fishing	0.00	0.00	35. Other Non-Metallic Mineral Products	0.05	0.06
11. Coal and Lignite	0.00	0.01	36. Iron and Steel	0.01	0.01
12. Crude Oil and Gas	0.01	0.01	37. Non-Ferrous Metals	0.01	0.01
13. Iron Ore	0.00	0.01	38. Non-Electrical Machinery	0.01	0.01
14. Other Metallic Minerals	0.00	0.01	39. Electrical Machinery	0.01	0.01
15. Non-Metallic and Minor Minerals	0.00	0.01	**40. Rail Equipment**	**0.01**	**0.01**
16. Sugar	0.00	0.01	41. Motor Vehicles	0.00	0.01
17. Khandsari and Boora	0.00	0.01	42. Other Transport Equipment	0.00	0.01
18. Other Food and Beverages	0.00	0.01	43. Communication and Electronic Equipment	0.01	0.01
19. Cotton Textiles	0.00	0.01	44. Other Manufacturing	0.00	0.01
20. Art Silk & Synthetic Fibre Textiles	0.00	0.01	45. Rail Transport Services	0.02	0.02
21. Woollen Textiles	0.00	0.01	46. Other Transport Services	0.00	0.01
22. Other Textiles	0.00	0.01	47. Electricity	0.01	0.01
23. Wood Based Products	0.00	0.01	48. Construction	0.08	0.08
24. Paper and Paper Based Products	0.01	0.01	49. Communication	0.00	0.01
25. Leather and Leather Products	0.00	0.01	50. Other Services	0.00	0.01

Wholesale Price Index

Partial Elasticity: 0.01 Total Elasticity: 0.01

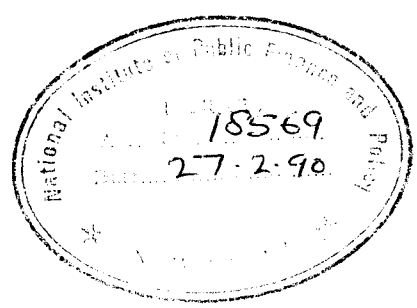

TABLE 8

Price Response Elasticities for Changes in the Administered Price of Iron and Steel

Industry	Elasticities Partial	Total	Industry	Elasticities Partial	Total
1. Paddy	0.02	0.05	26. Rubber Products	0.02	0.05
2. Wheat	0.03	0.06	27. Plastics	0.07	0.10
3. Other Cereals	0.02	0.05	28. Petroleum Products	0.09	0.11
4. Pulses	0.01	0.04	29. Coal Tar Products	0.07	0.10
5. Fibre Crops	0.01	0.05	30. Fertilisers	0.07	0.10
6. Tea and Coffee	0.01	0.04	31. Pesticides	0.05	0.08
7. Other Crops	0.01	0.04	32. Synthetic Fibre Resin	0.06	0.09
8. Animal Husbandry	0.01	0.04	33. Other Chemicals	0.06	0.09
9. Forestry & Logging	0.04	0.07	34. Cement	0.07	0.10
10. Fishing	0.01	0.04	35. Other Non-Metallic Mineral Products	0.10	0.13
11. Coal and Lignite	0.06	0.09	36. Iron and Steel	Price nously	Exoge- Fixed
12. Crude Oil and Gas	0.08	0.11	37. Non-Ferrous Metals	0.08	0.11
13. Iron Ore	0.05	0.08	38. Non-Electrical Machinery	0.47	0.49
14. Other Metallic Minerals	0.05	0.08	39. Electrical Machinery	0.29	0.31
15. Non-Metallic and Minor Minerals	0.03	0.06	40. Rail Equipment	0.44	0.46
16. Sugar	0.03	0.06	41. Motor Vehicles	0.37	0.39
17. Khandsari and Boora	0.03	0.06	42. Other Transport Equipment	0.25	0.28
18. Other Food and Beverages	0.03	0.06	43. Communication and Electronic Equipment	0.17	0.19
19. Cotton Textiles	0.04	0.07	44. Other Manufacturing	0.30	0.33
20. Art Silk & Synthetic Fibre Textiles	0.06	0.08	45. Rail Transport Services	0.11	0.14
21. Woollen Textiles	0.04	0.07	46. Other Transport Services	0.05	0.08
22. Other Textiles	0.04	0.07	47. Electricity	0.06	0.09
23. Wood Based Products	0.07	0.10	48. Construction	0.23	0.25
24. Paper and Paper Based Products	0.07	0.10	49. Communication	0.02	0.05
25. Leather and Leather Products	0.03	0.06	50. Other Services	0.03	0.06

Wholesale Price Index

Partial Elasticity: 0.09 Total Elasticity: 0.12

TABLE 9

Price Response Elasticities for Changes in the Administered Price of Non-Ferrous Metals

Industry	Elasticities Partial	Total	Industry	Elasticities Partial	Total
1. Paddy	0.00	0.01	26. Rubber Products	0.01	0.02
2. Wheat	0.01	0.02	27. Plastics	0.02	0.03
3. Other Cereals	0.00	0.01	28. Petroleum Products	0.02	0.03
4. Pulses	0.00	0.01	29. Coal Tar Products	0.01	0.02
5. Fibre Crops	0.00	0.01	30. Fertilisers	0.03	0.04
6. Tea and Coffee	0.00	0.01	31. Pesticides	0.02	0.03
7. Other Crops	0.00	0.01	32. Synthetic Fibre Resin	0.02	0.03
8. Animal Husbandry	0.00	0.01	33. Other Chemicals	0.04	0.05
9. Forestry & Logging	0.01	0.02	34. Cement	0.01	0.02
10. Fishing	0.00	0.01	35. Other Non-Metallic Mineral Products	0.02	0.03
11. Coal and Lignite	0.01	0.02	36. Iron and Steel	0.08	0.09
12. Crude Oil and Gas	0.01	0.02	37. Non-Ferrous Metals	Price nously	Exone- Fixed
13. Iron Ore	0.01	0.02	38. Non-Electrical Machinery	0.06	0.07
14. Other Metallic Minerals	0.01	0.02	39. Electrical Machinery	0.10	0.11
15. Non-Metallic and Minor Minerals	0.01	0.02	40. Rail Equipment	0.07	0.08
16. Sugar	0.01	0.01	41. Motor Vehicles	0.05	0.06
17. Khandsari and Boora	0.01	0.02	42. Other Transport Equipment	0.04	0.05
18. Other Food and Beverages	0.01	0.02	43. Communication and Electronic Equipment	0.07	0.08
19. Cotton Textiles	0.01	0.02	44. Other Manufacturing	0.07	0.08
20. Art Silk & Synthetic Fibre Textiles	0.02	0.03	45. Rail Transport Services	0.02	0.03
21. Woollen Textiles	0.01	0.02	46. Other Transport Services	0.01	0.02
22. Other Textiles	0.01	0.02	47. Electricity	0.01	0.02
23. Wood Based Products	0.01	0.02	48. Construction	0.03	0.04
24. Paper and Paper Based Products	0.02	0.03	49. Communication	0.00	0.01
25. Leather and Leather Products	0.01	0.02	50. Other Services	0.01	0.02

Wholesale Price Index

Partial Elasticity: 0.03 Total Elasticity: 0.04

non-ferrous metals constitute about 6 per cent of the cost of iron and steel production and for the production of each of the other groups listed above it is one of the most important inputs after iron and steel and own use of the respective commodity.

(i) Rail Transport Services

3.2.14 After cement, rail transport services has the lowest inflationary potential among the nine price-administered commodities considered. As shown in Table 10 both the partial and total elasticities of the general price level turn out to be 0.02.[12] Among individual commodities the only product which seems to be relatively sensitive to rail transport service price is coal tar products (0.12). This is followed by engineering products, cement and iron and steel for which the response elasticities are clustered in the range of 0.05 to 0.08. The agro-based products and agricultural products themselves have response elasticities which are negligible. These elasticities of the different products reflect the bulkiness or weight and relative cost shares of rail-transported inputs in the final prices of these commodities. The case of coal tar products is an obvious illustration.

3.2.15 The response elasticities of the general price level with respect to each of the nine price-administered commodity groups as estimated by the present model and an alternative model have been reproduced in Table 11. The essential difference between the two is that unlike the present model the alternative model does not assume that the pricing decisions of the administered sectors mimic the pricing behaviour of the non-administered sectors.[13] In particular it does not assume that the associated cost increase is passed on as higher prices of other administered products when some administered price is raised exogenously. Thus the two models capture the likely inflationary impact of administered price increases under two alternative rules of pricing behaviour for the administered sectors.

3.2.16 As is evident from Table 11, the inflationary potential is considerably dampened in the alternative model. This is not surprising given the pricing rule which is reflected in the alternative model. But it is important to remember that in this alternative case the lower inflation potential also implies a smaller volume of resource mobilisation since a part of the new resources appropriated by the price-raising sector is simply a transfer from the other administered sectors. The alternative

TABLE 10

Price Response Elasticities for Changes in the Administered Price of Rail Transport Services

Industry	Elasticities Partial	Total	Industry	Elasticities Partial	Total
1. Paddy	0.01	0.01	26. Rubber Products	0.01	0.02
2. Wheat	0.01	0.02	27. Plastics	0.03	0.03
3. Other Cereals	0.01	0.01	28. Petroleum Products	0.02	0.02
4. Pulses	0.00	0.01	29. Coal Tar Products	0.12	0.12
5. Fibre Crops	0.01	0.02	30. Fertilisers	0.03	0.04
6. Tea and Coffee	0.01	0.02	31. Pesticides	0.03	0.04
7. Other Crops	0.00	0.01	32. Synthetic Fibre Resin	0.03	0.04
8. Animal Husbandry	0.01	0.01	33. Other Chemicals	0.03	0.03
9. Forestry & Logging	0.01	0.02	34. Cement	0.07	0.07
10. Fishing	0.00	0.01	35. Other Non-Metallic Mineral Products	0.05	0.06
11. Coal and Lignite	0.01	0.02			
12. Crude Oil and Gas	0.01	0.02	36. Iron and Steel	0.08	0.08
13. Iron Ore	0.01	0.02	37. Non-Ferrous Metals	0.03	0.04
14. Other Metallic Minerals	0.01	0.02	38. Non-Electrical Machinery	0.06	0.05
15. Non-Metallic and Minor Minerals	0.01	0.01	39. Electrical Machinery	0.04	0.05
			40. Rail Equipment	0.07	0.08
16. Sugar	0.01	0.02	41. Motor Vehicles	0.06	0.06
17. Khandsari and Boora	0.01	0.02	42. Other Transport Equipment	0.04	0.05
18. Other Food and Beverages	0.01	0.02			
			43. Communication and Electronic Equipment	0.04	0.05
19. Cotton Textiles	0.02	0.02			
20. Art Silk & Synthetic Fibre Textiles	0.03	0.03	44. Other Manufacturing	0.04	0.05
			45. Rail Transport Services	Price Exogenously	Fixed
21. Woollen Textiles	0.02	0.02			
22. Other Textiles	0.01	0.02	46. Other Transport Services	0.01	0.02
23. Wood Based Products	0.04	0.04			
24. Paper and Paper Based Products	0.04	0.04	47. Electricity	0.03	0.03
			48. Construction	0.05	0.06
25. Leather and Leather Products	0.01	0.02	49. Communication	0.03	0.04
			50. Other Services	0.01	0.02

Wholesale Price Index

Partial Elasticity: 0.02 Total Elasticity: .02

TABLE 11

Response Elasticities of the General Price Level (WPI)

Commodity	Elasticity			
	Partial		Total	
	Present Model	Alternative Model £	Present Model	Alternative Model £
1. Cement	0.01	0.01	0.01	0.01
2. Rail Transport Services	0.02	0.01	0.02	0.01
3. Non-Ferrous Metals	0.03	-	0.04	-
4. Fertilisers	0.04	0.04	0.05	0.04
5. Coal and Lignite	0.05	0.01	0.07	0.02
6. Electricity	0.08	0.06	0.11	0.07
7. Iron and Steel	0.09	0.08	0.12	0.09
8. Petroleum Products	0.11	0.08	0.14	0.09
9. Crude Oil and Gas	0.11	0.01	0.14	0.01
All Selected Commodities	0.29	0.28 *	0.36	0.35 *

Notes: £ In this model a change in one administered price does not affect the other administered prices.

* Excluding non-ferrous metals.

model which captures this case is obviously not the most interesting for analysing the inflationary implications of a resource mobilisation strategy. The discussion which follows is therefore confined to the main model with which we have been working so far.

3.2.17 It is obvious from Table 11 that it is not very meaningful to ask whether administered price hikes are likely to be inflationary in general. The answer depends very much on which administered prices are raised since the price response elasticities vary from as little as 0.01 in the case of cement to as much as 0.14 in the case of crude oil, gas and petroleum products. Clearly there is considerable room for flexibility here. We have accordingly examined below the inflationary implications of different combinations of administered price increases.

Case 1: Coal and Lignite, Fertilisers, Non-ferrous Metals and Rail Transport Services

3.2.18 We first examine a case where the government chooses to raise the prices of only the low inflationary potential commodities in order to mobilise resources. The results for this case are presented in Table 12. The least inflationary administered commodity, cement, has not been considered because this sector is largely in the private sector. Raising cement prices would not therefore be very helpful in mobilising resources. When the prices of coal and lignite, fertilisers, non-ferrous metals and rail transport services are increased by 1 per cent the general price level goes up by 0.16 per cent. This comes about mainly due to a derived increase in the prices of coal tar products (0.62 per cent), electricity (0.42 per cent), cement (0.29 per cent), iron and steel (0.28 per cent) and various engineering products (around 0.20 per cent). The impact on most agricultural prices except wheat is quite weak.

Case 2: Crude Oil and Gas, Petroleum Products, Iron and Steel and Electricity

3.2.19 We next look at the case where, let us say for one reason or another, the government is forced to raise the administered prices of only the high inflationary potential commodities. The individual prices and the general price level would now change as shown in Table 13. The total response elasticity works out to 0.30. This means that a 20 per cent

TABLE 12

Price Response Elasticities for Changes in the Administered Prices of Coal and Lignite, Fertilisers, Non-Ferrous Metals and Rail Transport Services

Industry	Elasticities Partial	Total
1. Paddy	0.07	0.11
2. Wheat	0.14	0.17
3. Other Cereals	0.05	0.09
4. Pulses	0.03	0.07
5. Fibre Crops	0.06	0.10
6. Tea and Coffee	0.06	0.09
7. Other Crops	0.04	0.08
8. Animal Husbandry	0.03	0.07
9. Forestry & Logging	0.03	0.07
10. Fishing	0.01	0.05
11. Coal and Lignite	Price nously	Exoge- Fixed
12. Crude Oil and Gas	0.05	0.09
13. Iron Ore	0.04	0.08
14. Other Metallic Minerals	0.07	0.11
15. Non-Metallic and Minor Minerals	0.03	0.07
16. Sugar	0.05	0.09
17. Khandsari and Boora	0.05	0.09
18. Other Food and Beverages	0.06	0.09
19. Cotton Textiles	0.08	0.12
20. Art Silk & Synthetic Fibre Textiles	0.11	0.14
21. Woollen Textiles	0.07	0.11
22. Other Textiles	0.06	0.10
23. Wood Based Products	0.08	0.12
24. Paper and Paper Based Products	0.13	0.16
25. Leather and Leather Products	0.05	0.09
26. Rubber Products	0.04	0.08
27. Plastics	0.11	0.14
28. Petroleum Products	0.06	0.10
29. Coal Tar Products	0.61	0.62
30. Fertilisers	Price nously	Exoge- Fixed
31. Pesticides	0.09	0.12
32. Synthetic Fibre Resin	0.12	0.16
33. Other Chemicals	0.13	0.16
34. Cement	0.26	0.29
35. Other Non-Metallic Mineral Products	0.13	0.17
36. Iron and Steel	0.25	0.28
37. Non-Ferrous Metals	Price nously	Exoge- Fixed
38. Non-Electrical Machinery	0.18	0.22
39. Electrical Machinery	0.19	0.22
40. Rail Equipment	0.20	0.24
41. Motor Vehicles	0.16	0.19
42. Other Transport Equipment	0.13	0.16
43. Communication and Electronic Equipment	0.14	0.17
44. Other Manufacturing	0.16	0.19
45. Rail Transport Services	Price nously	Exoge- Fixed
46. Other Transport Services	0.03	0.07
47. Electricity	0.39	0.42
48. Construction	0.13	0.17
49. Communication	0.04	0.08
50. Other Services	0.03	0.07

Wholesale Price Index

Partial Elasticity: 0.12 Total Elasticity: 0.16

TABLE 13

Price Response Elasticities for Changes in the Administered Prices of Crude Oil and Gas, Petroleum Products, Iron and Steel and Electricity

Industry	Elasticities Partial	Total
1. Paddy	0.09	0.17
2. Wheat	0.18	0.24
3. Other Cereals	0.09	0.16
4. Pulses	0.05	0.13
5. Fibre Crops	0.08	0.15
6. Tea and Coffee	0.05	0.13
7. Other Crops	0.04	0.12
8. Animal Husbandry	0.04	0.12
9. Forestry & Logging	0.08	0.15
10. Fishing	0.03	0.11
11. Coal and Lignite	0.17	0.24
12. Crude Oil and Gas	Price nously	Exoge- Fixed
13. Iron Ore	0.26	0.32
14. Other Metallic Minerals	0.22	0.28
15. Non-Metallic and Minor Minerals	0.14	0.21
16. Sugar	0.09	0.16
17. Khandsari and Boora	0.12	0.19
18. Other Food and Beverages	0.10	0.17
19. Cotton Textiles	0.16	0.23
20. Art Silk & Synthetic Fibre Textiles	0.26	0.32
21. Woollen Textiles	0.14	0.21
22. Other Textiles	0.12	0.19
23. Wood Based Products	0.17	0.23
24. Paper and Paper Based Products	0.27	0.32
25. Leather and Leather Products	0.10	0.17
26. Rubber Products	0.09	0.16
27. Plastics	0.38	0.43
28. Petroleum Products	Price nously	Exoge- Fixed
29. Coal Tar Products	0.23	0.29
30. Fertilisers	0.61	0.65
31. Pesticides	0.16	0.23
32. Synthetic Fibre Resin	0.38	0.43
33. Other Chemicals	0.24	0.30
34. Cement	0.30	0.36
35. Other Non-Metallic Mineral Products	0.24	0.30
36. Iron and Steel	Price nously	Exoge- Fixed
37. Non-Ferrous Metals	0.37	0.42
38. Non-Electrical Machinery	0.54	0.57
39. Electrical Machinery	0.38	0.43
40. Rail Equipment	0.54	0.58
41. Motor Vehicles	0.47	0.51
42. Other Transport Equipment	0.35	0.40
43. Communication and Electronic Equipment	0.26	0.32
44. Other Manufacturing	0.38	0.43
45. Rail Transport Services	0.27	0.33
46. Other Transport Services	0.33	0.39
47. Electricity	Price nously	Exoge- Fixed
48. Construction	0.31	0.37
49. Communication	0.07	0.14
50. Other Services	0.07	0.15

Wholesale Price Index

Partial Elasticity: 0.24 Total Elasticity: 0.30

increase in the prices of crude oil and gas, petroleum products, iron and steel and electricity would trigger an extra inflation of the order of 6 per cent. The main contributors to this elasticity are fertilisers, non-electrical machinery, rail equipment and motor vehicles, with each of their individual response elasticities being greater than 0.50. The other individual response elasticities, including those for agricultural commodities, also do not fall below 0.12 in this case.

Case 3: Coal and Lignite, Fertilisers, Iron and Steel and Electricity

3.2.20 We now consider what is perhaps the most realistic case, i.e., where administered prices are raised for a combination of low and high inflationary potential commodities. According to Table 14 the general price level would rise by 5 per cent if the prices of coal and lignite, fertilisers, iron and steel and electricity were raised by 20 per cent each since the total response elasticity works out to 0.25 in this case. The main commodities contributing towards this response are coal tar products, non-electrical machinery, rail equipment and motor vehicles with total elasticities of more than 0.45 each. Among the agricultural products, the worst affected is once again wheat with an elasticity of 0.24 followed by paddy with an elasticity of 0.15.

Case 4: Coal and Lignite, Crude Oil and Gas, Petroleum Products and Electricity

3.2.21 Next we have a special case where only the energy prices are raised. It is interesting to note that a rise in energy prices gives exactly the same response elasticities (see Table 15) as the intermediate case 3. The commodity groups worst affected by energy price hikes are coal tar products and fertilisers with total elasticities of 0.63 and 0.66 respectively. Among the other major contributors to the general price rise in this case are plastics, synthetic fibre resin, cement and non-ferrous metals. Agricultural price response elasticities lie in the range of 0.10 to 0.15 except in the case of wheat for which it is 0.23.

Case 5: All Nine Price-Administered Products

3.2.22 Finally, we examine the case of an across-the-board increase in all nine administered prices. So far we have discussed the inflationary potential of price increases for the nine price-administered products

TABLE 14

Price Response Elasticities for Changes in the Administered Prices of Coal and Lignite, Fertilisers, Iron and Steel and Electricity

Industry	Elasticities Partial	Total	Industry	Elasticities Partial	Total
1. Paddy	0.09	0.15	26. Rubber Products	0.07	0.13
2. Wheat	0.18	0.24	27. Plastics	0.21	0.26
3. Other Cereals	0.07	0.13	28. Petroleum Products	0.12	0.18
4. Pulses	0.04	0.10	29. Coal Tar Products	0.57	0.60
5. Fibre Crops	0.08	0.13	30. Fertilisers	Price Exogenously Fixed	
6. Tea and Coffee	0.06	0.12			
7. Other Crops	0.05	0.11	31. Pesticides	0.13	0.18
8. Animal Husbandry	0.04	0.10	32. Synthetic Fibre Resin	0.22	0.27
9. Forestry & Logging	0.06	0.12	33. Other Chemicals	0.19	0.24
10. Fishing	0.02	0.08	34. Cement	0.34	0.38
11. Coal and Lignite	Price Exogenously Fixed		35. Other Non-Metallic Mineral Products	0.20	0.26
12. Crude Oil and Gas	0.11	0.16	36. Iron and Steel	Price Exogenously Fixed	
13. Iron Ore	0.10	0.16	37. Non-Ferrous Metals	0.33	0.37
14. Other Metallic Minerals	0.18	0.24	38. Non-Electrical Machinery	0.53	0.56
15. Non-Metallic and Minor Minerals	0.08	0.14	39. Electrical Machinery	0.36	0.40
16. Sugar	0.07	0.13	40. Rail Equipment	0.51	0.54
17. Khandsari and Boora	0.08	0.14	41. Motor Vehicles	0.43	0.46
18. Other Food and Beverages	0.08	0.14	42. Other Transport Equipment	0.31	0.36
19. Cotton Textiles	0.14	0.20	43. Communication and Electronic Equipment	0.23	0.28
20. Art Silk & Synthetic Fibre Textiles	0.20	0.25	44. Other Manufacturing	0.36	0.40
21. Woollen Textiles	0.12	0.18	45. Rail Transport Services	0.22	0.27
22. Other Textiles	0.10	0.16	46. Other Transport Services	0.06	0.12
23. Wood Based Products	0.14	0.20	47. Electricity	Price Exogenously Fixed	
24. Paper and Paper Based Products	0.22	0.27	48. Construction	0.29	0.34
25. Leather and Leather Products	0.08	0.14	49. Communication	0.04	0.11
			50. Other Services	0.05	0.12

Wholesale Price Index

Partial Elasticity: 0.20 Total Elasticity: 0.25

TABLE 15

Price Response Elasticities for Changes in the Administered Prices of Coal and Lignite, Crude Oil and Gas, Petroleum Products & Electricity

Industry	Elasticities Partial	Total	Industry	Elasticities Partial	Total
1. Paddy	0.09	0.15	26. Rubber Products	0.08	0.14
2. Wheat	0.17	0.23	27. Plastics	0.36	0.40
3. Other Cereals	0.08	0.14	28. Petroleum Products	Price Exogenously Fixed	
4. Pulses	0.05	0.11	29. Coal Tar Products	0.60	0.63
5. Fibre Crops	0.07	0.14	30. Fertilisers	0.64	0.66
6. Tea and Coffee	0.05	0.11	31. Pesticides	0.13	0.19
7. Other Crops	0.05	0.11	32. Synthetic Fibre Resin	0.36	0.40
8. Animal Husbandry	0.04	0.10	33. Other Chemicals	0.21	0.26
9. Forestry & Logging	0.06	0.12	34. Cement	0.36	0.41
10. Fishing	0.02	0.09	35. Other Non-Metallic Mineral Products	0.21	0.26
11. Coal and Lignite	Price Exogenously Fixed		36. Iron and Steel	0.26	0.31
12. Crude Oil and Gas	Price Exogenously Fixed		37. Non-Ferrous Metals	0.35	0.39
13. Iron Ore	0.23	0.28	38. Non-Electrical Machinery	0.20	0.25
14. Other Metallic Minerals	0.19	0.25	39. Electrical Machinery	0.18	0.23
15. Non-Metallic and Minor Minerals	0.12	0.18	40. Rail Equipment	0.22	0.28
16. Sugar	0.08	0.14	41. Motor Vehicles	0.21	0.26
17. Khandsari and Boora	0.11	0.17	42. Other Transport Equipment	0.18	0.23
18. Other Food and Beverages	0.08	0.14	43. Communication and Electronic Equipment	0.15	0.21
19. Cotton Textiles	0.15	0.20	44. Other Manufacturing	0.16	0.22
20. Art Silk & Synthetic Fibre Textiles	0.24	0.29	45. Rail Transport Services	0.24	0.29
21. Woollen Textiles	0.13	0.19	46. Other Transport Services	0.32	0.36
22. Other Textiles	0.10	0.16	47. Electricity	Price Exogenously Fixed	
23. Wood Based Products	0.13	0.18	48. Construction	0.17	0.22
24. Paper and Paper Based Products	0.24	0.29	49. Communication	0.06	0.12
25. Leather and Leather Products	0.08	0.14	50. Other Services	0.06	0.12

Wholesale Price Index

Partial Elasticity: 0.20 Total Elasticity: 0.25

taken individually or in some combinations. However it is also possible to conceive of a situation where the government decides to raise all administered prices, somewhat like the imposition of a uniform ad valorem tax on all the relevant commodities. To take account of this possibility we have estimated the response elasticities of individual non-administered commodity prices and the general price level when all the administered prices are changed simultaneously in the same direction. These elasticities are presented in Table 16.

3.2.23 When all nine prices change simultaneously the total response elasticity of the general price level works out to 0.36. Recall that the aggregate response elasticity for this case is similar under the alternative model (Table 11). This is because the two models are equivalent for the case where all administered prices are raised simultaneously. The immediate first-round response elasticity is 0.29. In other words, if all nine administered prices were raised simultaneously by say 20 per cent we would get an extra inflation rate of about 5.8 per cent in the first round itself. By the time the subsequent feedback effects have worked themselves out the extra inflation would add up to 7.2 per cent. Notice however that the model is not situated in time in the sense that it does not specify the calendar time period over which the feedback effects would work themselves out.

3.2.24 Among individual commodities, coal tar products have the highest response elasticity (0.72) followed by rail equipment (0.63), most of the engineering industry products and some petro-chemicals which have response elasticities in the range of 0.4 to 0.6. The response elasticities of major mining products, paper, rubber and some chemical and agro-based products come next with elasticities in the range of over 0.2 to 0.4. The only agricultural product in this category is wheat (0.30). All other agricultural products, agro-based products, communications and other services have low price response elasticities of 0.20 or less.

3.2.25 Finally it should be remarked that all the results reported above relate to changes in the general price level as measured by the Wholesale Price Index (WPI). It would be interesting to see how these numbers are modified if the exercise is reworked with a consumer price index. Unfortunately, the available consumer price indices for agricultural workers, industrial workers and urban non-manual workers do not easily lend themselves to such detailed input-output model based calculations as we

TABLE 16

Price Response Elasticities for Changes in the Administered Price of All Nine Products

Industry	Elasticities	
	Partial	Total
1. Paddy	0.12	0.20
2. Wheat	0.22	0.30
3. Other Cereals	0.11	0.19
4. Pulses	0.07	0.15
5. Fibre Crops	0.10	0.19
6. Tea and Coffee	0.08	0.16
7. Other Crops	0.06	0.15
8. Animal Husbandry	0.05	0.14
9. Forestry & Logging	0.09	0.18
10. Fishing	0.03	0.12
11. Coal and Lignite	Price nously	Exoge- Fixed
12. Crude Oil and Gas	Price nously	Exoge- Fixed
13. Iron Ore	0.27	0.33
14. Other Metallic Minerals	0.23	0.30
15. Non-Metallic and Minor Minerals	0.15	0.23
16. Sugar	0.11	0.19
17. Khandsari and Boora	0.14	0.22
18. Other Food and Beverages	0.12	0.20
19. Cotton Textiles	0.19	0.26
20. Art Silk & Synthetic Fibre Textiles	0.29	0.35
21. Woollen Textiles	0.17	0.24
22. Other Textiles	0.14	0.22
23. Wood Based Products	0.20	0.27
24. Paper and Paper Based Products	0.31	0.37
25. Leather and Leather Products	0.12	0.20
26. Rubber Products	0.10	0.19
27. Plastics	0.41	0.47
28. Petroleum Products	Price nously	Exoge- Fixed
29. Coal Tar Products	0.70	0.72
30. Fertilisers	Price nously	Exoge- Fixed
31. Pesticides	0.20	0.27
32. Synthetic Fibre Resin	0.42	0.47
33. Other Chemicals	0.28	0.35
34. Cement	Price nously	Exoge- Fixed
35. Other Non-Metallic Mineral Products	0.33	0.39
36. Iron and Steel	Price nously	Exoge- Fixed
37. Non-Ferrous Metals	Price nously	Exoge- Fixed
38. Non-Electrical Machinery	0.57	0.61
39. Electrical Machinery	0.45	0.50
40. Rail Equipment	0.59	0.63
41. Motor Vehicles	0.50	0.55
42. Other Transport Equipment	0.38	0.44
43. Communication and Electronic Equipment	0.32	0.38
44. Other Manufacturing	0.42	0.48
45. Rail Transport Services	Price nously	Exoge- Fixed
46. Other Transport Services	0.34	0.40
47. Electricity	Price nously	Exoge- Fixed
48. Construction	0.40	0.46
49. Communication	0.09	0.18
50. Other Services	0.09	0.17

Wholesale Price Index

Partial Elasticity: 0.29 Total Elasticity: 0.36

have attempted here since they are not compiled from a sufficiently detailed commodity classification. However, on the basis of the observed similarity of movements between the WPI and the CPI for the period 1970 to 1984, as shown in Table 17, we can conjecture that the overall results would not look very different.

4. A Concluding Remark

4.1 Our analysis of the contribution of administered price increases to past inflation showed that it has been considerably greater than what was suggested by the Finance Ministry discussion paper. On the other hand we have seen at the outset that the success of the Seventh Five Year Plan depends rather crucially on the generation of additional surpluses in public sector undertakings through administered price increases, since not too much can be expected by way of increased efficiency or productivity gains in the short run. Are we to conclude then that a high rate of inflation is a price which the government must necessarily pay if it were to follow this financing strategy in order to maintain the size of the Seventh Plan?

4.2 In our view, this does not follow at all from the fact that administered price increases have accounted for a substantial portion of past inflation. We have seen that during the eighties the average inflation rate has been much lower than the average inflation rate for the post-1970-71 period as a whole though administered price increases still account for a large proportion of total inflation. As we all know, the very high inflation rates of the seventies were largely attributable to the two oil shocks which affected the entire world economy. It is purely incidental that in India these external shocks were passed on in the form of administered price increases since oil production and refining happen to be public sector activities in this country.

4.3 What really matters for an answer to our question is the vector of total response elasticities of the general price level reported in Table 11. Clearly a number of major administered prices could be raised substantially without triggering much extra inflation. Cement prices for instance can be raised with almost no inflationary impact at all. However, cement is not particularly interesting since it is mostly in the private sector and cement price hikes would not place more resources in the hands

TABLE 17

Price Index Movements

Year	Wholesale price index (WPI) (1970-71=100)	Industrial workers consumer price index (CPI) (1970=100)
1970	99.0	100.00
1971	105.0	103.26
1972	113.0	109.78
1973	131.6	128.26
1974	169.2	165.22
1975	175.8	174.46
1976	172.4	160.87
1977	185.4	174.46
1978	185.0	178.80
1979	206.5	190.22
1980	248.1	211.96
1981	278.4	239.67
1982	285.3	258.15
1983	308.5	289.13
1984	338.0	313.04

Source: Government of India, Ministry of Planning: Statistical Abstract, India, New Series (various issues), Central Statistical Organisation.

of the government. But there are a range of public sector products such as coal and lignite, fertilisers, non-ferrous metals or rail transport services whose prices could be raised to mobilise substantial extra resources without triggering much extra inflation (case 1 above).

4.4 It is arguable that of these low inflationary potential products fertilisers must be left alone for political considerations in a farmer-dominated polity. It is also possible that the inflationary impact of rail transport services may be greater than indicated in our model since it does not directly enter the price index used to measure inflation. Questions have also been raised about the reliability of the rail transport coefficient in the Seventh Plan input-output table we have used. Let us assume therefore that for one reason or another the government is forced to choose only the high inflationary potential products (case 2 above) or, more realistically, a combination of high and low inflationary potential products (case 3 above). It turns out that the government could mobilise resources through these sectors with an extra inflation rate of 3 per cent or less for every 10 per cent increase in administered prices.

4.5 Clearly a policy of judiciously selected administered price increases would go a long way in closing the resource gap for the Seventh Plan without generating very high rates of extra inflation. However, we should remind our readers that this strategy could also have important effects on resource allocation, income distribution or aggregate demand which have not been addressed in this paper.

NOTES

1. Reported editorially in the Economic and Political Weekly, Vol. XXI, No. 3, August 16, 1986.

2. For an excellent analysis of macro-economic implications in general, see Dasgupta (1986). For a comparison of this strategy with increased deficit financing, see Sundaram and Tendulkar (1986, 1987). On other allocative or distributive effects and normative pricing principles, see Bagchi (1986), Chatterjee, Gangopadhyay and Sinha (1986), Ghosh (1982) and Khusro (1986).

3. Strictly speaking, the elasticity measures are valid for any past or future period for which the Seventh Plan input-output table is applicable.

4. Gupta and Srinivasan (1984) recognised the existence of these feedback effects and made a conjecture about their likely impact. But the effects were not incorporated in their computable model. Sundaram and Tendulkar (1986) also referred to these effects and made a conjecture that the price sequence could be explosive. However, their paper develops a heuristic argument and does not include any computations. In fact the total inflationary impact will approach an upper limit asymptotically provided the second-round effect is less than the initial effect.

5. See, for instance, Sawhney and Sawhney (1973), Katrak (1980) and Chatterjee (1986). But see also Madhur and Roy (1986).

6. See, among others, Bose (1986), Dasgupta (1986), Rakshit (1982) and Taylor (1983).

7. For estimating the elasticity of money wages with respect to the general price level η_j the entire non-administered sector was partitioned into an agricultural sector and a non-agricultural sector and η_j estimated separately for these two broad sectors on the assumption that η_j would be the same for all sub-sectors within these two broad sectors though it could vary between the two sectors for institutional and other reasons. However, it turns out that η_j is the same for both sectors. For details on the estimation of η_j and computation of the parameters α_i, b_{ij}, b_{wj}, etc., see Appendix A.

8. In its actual estimate the Ministry paper took account only of the direct impact on the wholesale price index (WPI) but it conjectured that the total impact after netting out interactions may be similar.

9. In a related study Rao (1984) had estimated the contribution of nine administered price increases to be about 27 per cent of total inflation for the period 1970-71 to 1983-84. Instead of cement, which has been included in our calculation and has been found to have a negligible inflationary potential, Rao had included communication. Also he had used the 1973-74 input-output table and an absolute rather than a proportionate mark-up rule. His calculations correspond to about half our estimate of the first-round impact. He did not measure the total impact.

10. Based on the 1979-80 input-output table and an absolute mark-up rule, Gupta and Srinivasan (1984) estimated the contribution of 21 administered price commodities to be 57.34 per cent of total inflation for the period 1979-82. This was again only the first-round impact. If the total impact is about 22 per cent more than the initial impact as indicated by our calculation, then the total contribution of all the 21 administered price commodities may have been close to 70 per cent of the recorded inflation.

11. These were the nine commodity groups suggested by the Planning Commission when it originally requested us to undertake this study.

12. The estimates are rounded to the second decimal place. The elasticities being very low the feedback effects after the first round do not show up at this level of precision.

13. Response elasticities based on this alternative model were worked out in detail in the earlier version of this paper. The data are reproduced in Appendix B for purposes of comparison.

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APPENDIX A

I. Calculation of b_{ij} and b_{wj}

The input-use coefficients have been taken from the 50 X 50 commodity X industry matrix for 1984-85 given in the Technical Note on the Seventh Plan of India (1985-90), Perspective Planning Division, Planning Commission, Government of India, June, 1986.

Of the 50 sectors, nine are administered sectors as follows:

S.No.	Sector
11.	Coal and Lignite
12.	Crude Petroleum and Natural Gas
28.	Petroleum Products
30.	Fertilisers
34.	Cement
36.	Iron and Steel
37.	Non-Ferrous Metals
45.	Rail Transport Services
47.	Electricity

The remaining 41 sectors are treated as completely non-administered sectors comprising 10 agricultural sectors and 32 non-agricultural sectors.

Input-Use Coefficients

A typical entry in the given input-use coefficients matrix gives the value of ith input required per rupee worth of jth output. Using our notation each entry in the matrix is therefore $a_{ij}p_i$ with the units defined such that the initial price vector $(p_1,....,p_{50}) = (1.0,...,1.0)$.

Labour Coefficients

The labour cost per rupee of jth output or the jth labour coefficient $l_j w_j$ is obtained as a product of the gross value added (GVA) coefficient (given in the input-output matrix) and the share of wages in GVA for each sector.

To calculate the share of wages in GVA for the non-agricultural sectors we have used data on 20 industries for the year 1980 given in the Principal Characteristics of Selected Industries in Organised Manufacturing Sector (1960-1980), Central Statistical Organisation, Ministry of Planning, Government of India, December, 1984. The ratio of wages to GVA has been calculated as [(Number of workers X wages per worker) + (Number of employees X emoluments per employee)] / GVA for each of the 20 industries. These have been then matched with the non-agricultural sectors of the I - O Table. For instance, the share obtained for `chemicals and chemical products' has been assumed to apply to four industries, namely, fertilisers, pesticides, synthetic fibre resin and other chemicals.

For calculating the share of wages in GVA for the ten non-administered agricultural sectors, data, which were available for three categories only, have been taken from the National Accounts Statistics (NAS), Central Statistical Organisation, Ministry of Planning, Government of India for 1980-81. Therefore, for sectors 1 to 8 we have used the share of wages in GVA for the sector `agriculture and allied activities' calculated from the NAS. The shares for `forestry and logging' and `fishing' have been calculated separately from the NAS. These shares of wages in GVA for the agricultural sector have been obtained as (compensation of employees + mixed income of self-employed)/GVA).

Having obtained the input use coefficients ($a_{ij}p_i$) and labour coefficients ($l_j w_j$) we could calculate

$$\bar{a}_j = \sum_{i \in I_M} a_{ij}p_i + l_j w_j, \quad j \in I_m$$

and hence $b_{ij} = a_{ij}p_i/\bar{a}_j$, $b_{wj} = l_j w_j/\bar{a}_j$, $i \in I_M$, $j \in I_m$.

II. Weighting Diagram for Wholesale Price Index (α)

The highly disaggregated data of the Wholesale Price Index weighting diagram have been condensed into 50 sectors to obtain α_i, (i=1,...,50) as follows in Table A.1.

III. Relation Between Wage Rates and the General Price Level

The entire non-administered sector has been partitioned into two sub-sectors, agriculture and non-agriculture, for obtaining a relation between the nominal wage rates and the general price level. However, nominal wage series are not available directly for either sector.

From Tables 1.1.25 and 2.5 of the Principal Characteristics of Selected Industries the 'average emoluments' from 1960-1980 for all 20 selected industries have been obtained as [(percentage of workers to all employees X wages per worker) + (percentage of employees other than workers to all employees X emoluments per employee)] This series converted with 1970 = 100 has been used as the series of non-agricultural wage index.

For the agricultural sector, a large volume of data on wages is available but in a highly disaggregated form. Since no all-India index of agricultural wages is available, wage data for individual states (each represented by a centre) have been used to calculate the all-India average wage for each year as a weighted average of the wage rates of all states. The state shares in total agricultural labour force in 1971 have been used as weights. To obtain a consistent time series, data have been used for only 13 states for which continuous data were available for the period 1960-61 to 1985-86. The type of labour covered was field labour/ploughman. The all-India average money wages were then transformed into an index setting 1970-71 = 100*. The two series of wage indices are presented on page 48.

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* We are grateful to the Agricultural Costs and Prices Commission for having made available to us the annual average wage data by states. The state shares in agricultural labour force have been taken from Census of India, 1971, Series I, Part-II-B(ii), General Economic Tables.

TABLE A.1

	Sector	Weight in WPI
1.	Paddy	51.31
2.	Wheat	34.17
3.	Other Cereals	18.41
4.	Pulses	21.79
5.	Fibre Crops	26.75
6.	Tea and Coffee	13.10
7.	Other Crops	197.27
8.	Animal Husbandry	77.08
9.	Forestry and Logging	3.59
10.	Fishing	6.31
11.	Coal and Lignite *	10.72
12.	Crude Oil and Gas *	6.02
13.	Iron Ore	1.56
14.	Other Metallic Minerals	0.73
15.	Non-Metallic and Minor Minerals	4.16
16.	Sugar	21.91
17.	Khandsari and Boora	4.92
18.	Other Food and Beverages	90.84
19.	Cotton Textiles	81.02
20.	Art Silk and Synthetic Fibre Textiles	10.92
21.	Woollen Textiles	2.44
22.	Other Textiles	15.88
23.	Wood Based Industries	1.74
24.	Paper and Paper Based Industries	8.51
25.	Leather and Leather Products	3.85
26.	Rubber Products	11.13
27.	Plastics	0.94
28.	Petroleum Products	49.12
29.	Coal Tar Products	0.75
30.	Fertilisers	12.52
31.	Pesticides	1.16
32.	Synthetic Fibre Resin	8.30
33.	Other Chemicals	33.50
34.	Cement *	7.03

	Sector	Weight in WPI
35.	Other Non-Metallic Mineral Products	7.12
36.	Iron and Steel	33.63
37.	Non-Ferrous Metals	11.78
38.	Non-Electrical Machinery	30.91
39.	Electrical Machinery	17.19
40.	Rail Equipment	1.10
41.	Motor Vehicles	12.15
42.	Other Transport Equipment	4.58
43.	Communication & Electronic Equipment	2.71
44.	Other Manufacturing	18.33
45.	Rail Transport Services	0.00
46.	Other Transport Services	0.00
47.	Electricity*	24.00
48.	Construction	0.00
49.	Communication	0.00
50.	Other Services	0.00
	All Commodities	1000.00

Asterisks denote the price-administered sectors.

Year	Agricultural wage index* (1970-71=100)	Year	Non-agricultural wage index (1970 = 100)
1960-61	49.24	1960	46.55
1961-62	53.56	1961	50.14
1962-63	55.07	1962	54.21
1963-64	57.06	1963	57.29
1964-65	64.21	1964	60.87
1965-66	70.94	1965	66.65
1966-67	79.36	1966	73.25
1967-68	83.48	1967	80.81
1968-69	89.99	1968	86.09
1969-70	94.74	1969	91.31
1970-71	100.00	1970	100.00
1971-72	102.66	1971	107.46
1972-73	107.32	1972	119.49
1973-74	119.72	1973	131.51
1974-75	138.33	1974	152.62
1975-76	150.67	1975	170.68
1976-77	159.58	1976	170.62
1977-78	165.56	1977	178.77
1978-79	172.70	1978	205.63
1979-80	191.39	1979	229.60
1980-81	209.80	1980	254.46
1981-82	239.47		
1982-83	271.75		
1983-84	308.45		
1984-85	348.01		
1985-86	385.23		
1986-879	403.23		

Note: * This series relates to the crop year, July-June. For the year 1986-87 the reported figure relates to the month of July, 1986.

Finally the elasticities of wage rates for each of the two sectors with respect to the general price level (WPI) have been obtained by fitting a relationship of the form

$$\dot{w} = \beta + \eta \dot{P} + \gamma t$$

Where $\dot{w}$ and $\dot{P}$ are the annual percentage changes in the wage index and the WPI respectively and t refers to time (year), after checking that $\dot{P}$ itself is not correlated with t. In effect we have assumed that the determinants of $\dot{w}$ are additively separable and that the effects of all determinants other than $\dot{P}$ are either captured in the time independent constant term β or the time variable t.

The coefficient of $\dot{P}$ (η) gives the elasticity of sectoral wage rates with respect to the general price level P. It has been assumed that the elasticities estimated for the two broad sectors, agriculture and non-agriculture, apply to their respective sub-sectors. But it turns out that the estimated elasticities for both the sectors are equal to 0.26 as indicated in the following regression equations:

Non-Agricultural Sector

$$\dot{w} = \underset{(0.014)}{0.054***} + \underset{(0.104)}{0.260**}\ \dot{P} + \underset{(0.001)}{0.001}\ t \qquad R^2 = 0.32$$

Agricultural Sector

$$\dot{w} = \underset{(0.014)}{0.037***} + \underset{(0.102)}{0.260**}\ \dot{P} + \underset{(0.001)}{0.002*}\ t \qquad R^2 = 0.35$$

Note: Figures in parentheses indicate standard errors. Asterisks indicate significance at 1 per cent (***), 2.5 per cent (**) or 5 per cent (*) levels.

APPENDIX B

Response Elasticities Calculated from the Alternative Model

TABLE B1

Price Response Elasticities for Changes in the Administered Price of Crude Oil, Gas and Petroleum Products

Industry	Elasticities Partial	Total	Industry	Elasticities Partial	Total
1. Paddy	0.04	0.06	22. Paper and Paper Based Products	0.06	0.08
2. Wheat	0.04	0.06	23. Leather and Leather Products	0.04	0.06
3. Other Cereals	0.04	0.06	24. Rubber Products	0.07	0.09
4. Pulses	0.02	0.05	25. Plastics	0.21	0.23
5. Fibre Crops	0.02	0.05	26. Coal Tar Products	0.05	0.05
6. Tea and Coffee	0.01	0.04	27. Pesticides	0.04	0.06
7. Other Crops	0.01	0.04	28. Synthetic Fibre Resin	0.19	0.21
8. Animal Husbandry	0.01	0.04	29. Other Chemicals	0.06	0.08
9. Forestry and Logging	0.03	0.05	30. Other Non-Metallic & Mineral Products	0.07	0.08
10. Fishing	0.02	0.04	31. Non-Ferrous Metals	0.07	0.09
11. Iron Ore	0.18	0.20	32. Non-Electrical Machinery	0.02	0.03
12. Other Metallic Minerals	0.04	0.06	33. Electrical Machinery	0.03	0.05
13. Non-Metallic and Minor Minerals	0.07	0.09	34. Rail Equipment	0.04	0.05
14. Sugar	0.03	0.06	35. Motor Vehicles	0.06	0.07
15. Khandsari and Boora	0.06	0.08	36. Other Transport Equipment	0.05	0.07
16. Other Food and Beverages	0.03	0.06	37. Communication and Electronic Equipment	0.04	0.06
17. Cotton Textiles	0.04	0.06	38. Other Manufacturing	0.03	0.04
18. Art Silk and Synthetic Textiles	0.08	0.10	39. Other Transport Services	0.31	0.33
19. Woollen Textiles	0.04	0.06	40. Construction	0.04	0.06
20. Other Textiles	0.03	0.05	41. Communication	0.03	0.05
21. Wood Based Products	0.03	0.06	42. Other Services	0.02	0.05

Wholesale Price Index

Partial Elasticity: 0.03 Total Elasticity: 0.05

TABLE B2

Price Response Elasticities for Changes in the Administered Price of Coal and Lignite

Industry	Elasticities Partial	Total	Industry	Elasticities Partial	Total
1. Paddy	0.00	0.00	22. Paper and Paper Based Products	0.01	0.01
2. Wheat	0.00	0.00	23. Leather and Leather Products	0.00	0.01
3. Other Cereals	0.00	0.00	24. Rubber Products	0.00	0.01
4. Pulses	0.00	0.00	25. Plastics	0.01	0.01
5. Fibre Crops	0.00	0.00	26. Coal Tar Products	0.47	0.47
6. Tea and Coffee	0.00	0.00	27. Pesticides	0.00	0.01
7. Other Crops	0.00	0.00	28. Synthetic Fibre Resin	0.01	0.01
8. Animal Husbandry	0.00	0.00	29. Other Chemicals	0.01	0.01
9. Forestry and Logging	0.00	0.01	30. Other Non-Metallic & Mineral Products	0.02	0.02
10. Fishing	0.00	0.00	31. Non-Ferrous Metals	0.02	0.02
11. Iron Ore	0.00	0.00	32. Non-Electrical Machinery	0.00	0.01
12. Other Metallic Minerals	0.00	0.00	33. Electrical Machinery	0.01	0.01
13. Non-Metallic and Minor Minerals	0.00	0.00	34. Rail Equipment	0.00	0.01
14. Sugar	0.00	0.01	35. Motor Vehicles	0.00	0.01
15. Khandsari and Boora	0.00	0.01	36. Other Transport Services	0.00	0.01
16. Other Food and Beverages	0.00	0.01	37. Communication and Electronic Equipment	0.00	0.01
17. Cotton Textiles	0.00	0.01	38. Other Manufacturing	0.01	0.01
18. Art Silk and Synthetic Textiles	0.01	0.01	39. Other Transport Services	0.00	0.00
19. Woollen Textiles	0.00	0.01	40. Construction	0.01	0.02
20. Other Textiles	0.00	0.01	41. Communication	0.00	0.00
21. Wood Based Products	0.00	0.01	42. Other Services	0.00	0.01

Wholesale Price Index

Partial Elasticity: 0.00 Total Elasticity: 0.01

TABLE B3

Price Response Elasticities for Changes in the Administered Price of Electricity

	Industry	Elasticities Partial	Total		Industry	Elasticities Partial	Total
1.	Paddy	0.01	0.03	22.	Paper and Paper Based Products	0.14	0.15
2.	Wheat	0.07	0.08	23.	Leather and Leather Products	0.04	0.05
3.	Other Cereals	0.01	0.03	24.	Rubber Products	0.08	0.10
4.	Pulses	0.01	0.03	25.	Plastics	0.12	0.14
5.	Fibre Crops	0.02	0.03	26.	Coal Tar Products	0.05	0.06
6.	Tea and Coffee	0.01	0.02	27.	Pesticides	0.07	0.08
7.	Other Crops	0.01	0.02	28.	Synthetic Fibre Resin	0.14	0.15
8.	Animal Husbandry	0.01	0.03	29.	Other Chemicals	0.12	0.13
9.	Forestry and Logging	0.01	0.03	30.	Other Non-Metallic & Mineral Products	0.07	0.08
10.	Fishing	0.00	0.02	31.	Non-Ferrous Metals	0.24	0.25
11.	Iron Ore	0.04	0.05	32.	Non-Electrical Machinery	0.05	0.06
12.	Other Metallic Minerals	0.14	0.15	33.	Electrical Machinery	0.06	0.07
13.	Non-Metallic and Minor Minerals	0.04	0.06	34.	Rail Equipment	0.06	0.07
14.	Sugar	0.02	0.04	35.	Motor Vehicles	0.05	0.06
15.	Khandsari and Boora	0.03	0.04	36.	Other Transport Equipment	0.06	0.07
16.	Other Food and Beverages	0.03	0.04	37.	Communication and Electronic Equipment	0.06	0.07
17.	Cotton Textiles	0.08	0.10	38.	Other Manufacturing	0.05	0.06
18.	Art Silk and Synthetic Textiles	0.13	0.15	39.	Other Transport Services	0.01	0.02
19.	Woollen Textiles	0.07	0.09	40.	Construction	0.03	0.03
20.	Other Textiles	0.05	0.07	41.	Communication	0.02	0.03
21.	Wood Based Products	0.06	0.08	42.	Other Services	0.02	0.04

Wholesale Price Index

Partial Elasticity: 0.06 Total Elasticity: 0.07

TABLE B4

Price Response Elasticities for Changes in the Administered Price of Fertilisers

Industry	Elasticities Partial	Total	Industry	Elasticities Partial	Total
1. Paddy	0.06	0.07	22. Paper and Paper Based Products	0.00	0.01
2. Wheat	0.10	0.11	23. Leather and Leather Products	0.01	0.01
3. Other Coreals	0.03	0.04	24. Rubber Products	0.01	0.02
4. Pulses	0.02	0.03	25. Plastics	0.00	0.01
5. Fibre Crops	0.05	0.06	26. Coal Tar Products	0.00	0.00
6. Tea and Coffee	0.04	0.05	27. Pesticides	0.00	0.01
7. Other Crops	0.04	0.05	28. Synthetic Fibre Resin	0.01	0.02
8. Animal Husbandry	0.02	0.03	29. Other Chemicals	0.01	0.02
9. Forestry and Logging	0.00	0.01	30. Other Non-Metallic & Mineral Products	0.00	0.01
10. Fishing	0.00	0.01	31. Non-Ferrous Metals	0.00	0.01
11. Iron Ore	0.00	0.01	32. Non-Electrical Machinery	0.00	0.01
12. Other Metallic Minerals	0.00	0.01	33. Electrical Machinery	0.00	0.01
13. Non-Metallic and Minor Minerals	0.00	0.01	34. Rail Equipment	0.00	0.01
14. Sugar	0.02	0.03	35. Motor Vehicles	0.00	0.01
15. Khandsari and Bocra	0.02	0.03	36. Other Transport Equipment	0.00	0.01
16. Other Food and Beverages	0.02	0.04	37. Communication and Electronic Equipment	0.00	0.01
17. Cotton Textiles	0.02	0.03	38. Other Manufacturing	0.00	0.01
18. Art Silk and Synthetic Textiles	0.01	0.01	39. Other Transport Services	0.00	0.01
19. Woollen Textiles	0.01	0.02	40. Construction	0.00	0.01
20. Other Textiles	0.01	0.02	41. Communication	0.00	0.01
21. Wood Based Products	0.00	0.01	42. Other Services	0.00	0.01

Wholesale Price Index

Partial Elasticity: 0.02 Total Elasticity: 0.03

TABLE B5

Price Response Elasticities for Changes in the Administered Price of Cement

Industry	Elasticities Partial	Total	Industry	Elasticities Partial	Tota
1. Paddy	0.00	0.00	22. Paper and Paper Based Products	0.00	0.01
2. Wheat	0.00	0.00	23. Leather and Leather Products	0.00	0.00
3. Other Cereals	0.00	0.01	24. Rubber Products	0.00	0.01
4. Pulses	0.00	0.00	25. Plastics	0.00	0.00
5. Fibre Crops	0.00	0.00	26. Coal Tar Products	0.00	0.00
6. Tea and Coffee	0.00	0.00	27. Pesticides	0.00	0.01
7. Other Crops	0.00	0.00	28. Synthetic Fibre Resin	0.00	0.00
8. Animal Husbandry	0.00	0.00	29. Other Chemicals	0.00	0.01
9. Forestry and Logging	0.01	0.01	30. Other Non-Metallic & Mineral Products	0.05	0.05
10. Fishing	0.00	0.00	31. Non-Ferrous Metals	0.00	0.01
11. Iron Ore	0.00	0.01	32. Non-Electrical Machinery	0.00	0.0
12. Other Metallic Minerals	0.00	0.00	33. Electrical Machinery	0.00	0.0
13. Non-Metallic and Minor Minerals	0.00	0.00	34. Rail Equipment	0.00	0.0
14. Sugar	0.00	0.00	35. Motor Vehicles	0.00	0.0
15. Khandsari and Boora	0.00	0.00	36. Other Transport Equipment	0.00	0.0
16. Other Food and Beverages	0.00	0.00	37. Communication and Electronic Equipment	0.00	0.01
17. Cotton Textiles	0.00	0.00	38. Other Manufacturing	0.00	0.0
18. Art Silk and Synthetic Textiles	0.00	0.01	39. Other Transport Services	0.00	0.0
19. Woollen Textiles	0.00	0.00	40. Construction	0.08	0.0
20. Other Textiles	0.00	0.00	41. Communication	0.00	0.0
21. Wood Based Products	0.00	0.01	42. Other Services	0.00	0.01

Wholesale Price Index

Partial Elasticity: 0.00 Total Elasticity: 0.00

TABLE 86

Price Response Elasticities for Changes in the Administered Price of Iron and Steel

	Industry	Elasticities Partial	Total		Industry	Elasticities Partial	Total
1.	Paddy	0.01	0.03	22.	Paper and Paper Based Products	0.05	0.07
2.	Wheat	0.01	0.03	23.	Leather and Leather Products	0.03	0.04
3.	Other Cereals	0.01	0.04	24.	Rubber Products	0.04	0.06
4.	Pulses	0.01	0.03	25.	Plastics	0.04	0.06
5.	Fibre Crops	0.01	0.03	26.	Coal Tar Products	0.02	0.03
6.	Tea and Coffee	0.01	0.03	27.	Pesticides	0.04	0.06
7.	Other Crops	0.00	0.03	28.	Synthetic Fibre Resin	0.04	0.05
8.	Animal Husbandry	0.01	0.03	29.	Other Chemicals	0.05	0.06
9.	Forestry and Logging	0.03	0.05	30.	Other Non-Metallic & Mineral Products	0.08	0.10
10.	Fishing	0.01	0.03	31.	Non-Ferrous Metals	0.05	0.07
11.	Iron Ore	0.04	0.05	32.	Non-Electrical Machinery	0.47	0.48
12.	Other Metallic Minerals	0.04	0.06	33.	Electrical Machinery	0.28	0.30
13.	Non-Metallic and Minor Minerals	0.02	0.05	34.	Rail Equipment	0.43	0.44
14.	Sugar	0.02	0.04	35.	Motor Vehicles	0.36	0.37
15.	Khandsari and Boora	0.02	0.04	36.	Other Transport Equipment	0.24	0.26
16.	Other Food and Beverages	0.02	0.04	37.	Communication and Electronic Equipment	0.16	0.17
17.	Cotton Textiles	0.03	0.05	38.	Other Manufacturing	0.30	0.31
18.	Art Silk and Synthetic Textiles	0.04	0.06	39.	Other Transport Services	0.02	0.04
19.	Woollen Textiles	0.03	0.05	40.	Construction	0.21	0.23
20.	Other Textiles	0.03	0.05	41.	Communication	0.02	0.04
21.	Wood Based Products	0.06	0.08	42.	Other Services	0.02	0.05

Wholesale Price Index

Partial Elasticity: 0.04 Total Elasticity: 0.06

TABLE B7

Price Response Elasticities for Changes in the Administered Price of Rail Transport Services

Industry	Elasticities Partial	Total	Industry	Elasticities Partial	Total
. Paddy	0.00	0.01	22. Paper and Paper Based Products	0.03	0.03
. Wheat	0.01	0.01	23. Leather and Leather Products	0.01	0.01
. Other Cereals	0.00	0.01	24. Rubber Products	0.02	0.02
. Pulses	0.00	0.00	25. Plastics	0.02	0.02
. Fibre Crops	0.01	0.01	26. Coal Tar Products	0.11	0.11
. Tea and Coffee	0.01	0.01	27. Pesticides	0.03	0.03
. Other Crops	0.00	0.00	28. Synthetic Fibre Resin	0.02	0.02
. Animal Husbandry	0.00	0.01	29. Other Chemicals	0.02	0.02
. Forestry and Logging	0.01	0.01	30. Other Non-Metallic & Mineral Products	0.04	0.04
. Fishing	0.00	0.00	31. Non-Ferrous Metals	0.02	0.02
. Iron Ore	0.00	0.01	32. Non-Electrical Machinery	0.02	0.02
. Other Metallic Minerals	0.00	0.01	33. Electrical Machinery	0.02	0.02
. Non-Metallic and Minor Minerals	0.00	0.00	34. Rail Equipment	0.04	0.04
. Sugar	0.01	0.01	35. Motor Vehicles	0.03	0.03
. Khandsari and Boora	0.01	0.01	36. Other Transport Equipment	0.02	0.02
. Other Food and Beverages	0.01	0.01	37. Communication and Electronic Equipment	0.03	0.03
. Cotton Textiles	0.01	0.01	38. Other Manufacturing	0.01	0.02
. Art Silk and Synthetic Textiles	0.02	0.02	39. Other Transport Services	0.00	0.01
. Woollen Textiles	0.01	0.01	40. Construction	0.03	0.03
. Other Textiles	0.01	0.01	41. Communication	0.03	0.03
. Wood Based Products	0.03	0.03	42. Other Services	0.01	0.01

Wholesale Price Index

Partial Elasticity: 0.01 Total Elasticity: 0.01

TABLE B8

Price Response Elasticities for Changes in the Administered Price of All Eight Products

Industry	Elasticities Partial	Total	Industry	Elasticities Partial	Total
1 Paddy	0.12	0.20	22. Paper and Paper Based Products	0.30	0.36
2 Wheat	0.22	0.29	23. Leather and Leather Products	0.12	0.20
3. Other Cereals	0.11	0.19	24. Rubber Products	0.22	0.29
4. Pulses	0.06	0.15	25. Plastics	0.41	0.46
5. Fibre Crops	0.10	0.18	26. Coal Tar Products	0.69	0.72
6. Tea and Coffee	0.08	0.17	27. Pesticides	0.19	0.26
7. Other Crops	0.06	0.14	28. Synthetic Fibre Resin	0.41	0.46
. Animal Husbandry	0.05	0.14	29. Other Chemicals	0.26	0.33
. Forestry and Logging	0.0	0.17	30. Other Non-Metallic & Mineral Products	0.33	0.39
. Fishing	0.03	0.12	31. Non-Ferrous Metals	0.40	0.46
. Iron Ore	0.27	0.33	32. Non-Electrical Machinery	0.56	0.60
. Other Metallic Minerals	0.23	0.30	33. Electrical Machinery	0.40	0.46
. Non-Metallic and Minor Minerals	0.15	0.22	34. Rail Equipment	0.57	0.61
. Sugar	0.11	0.19	35. Motor Vehicles	0.50	0.55
5. Khandsari and Boora	0.14	0.21	36. Other Transport Equipment	0.37	0.43
. Other Food and Beverages	0.11	0.19	37. Communication and Electronic Equipment	0.29	0.35
7. Cotton Textiles	0.18	0.26	38. Other Manufacturing	0.40	0.45
8. Art Silk and Synthetic Textiles	0.28	0.35	39. Other Transport Services	0.34	0.40
9. Woollen Textiles	0.16	0.24	40. Construction	0.40	0.45
0. Other Textiles	0.13	0.21	41. Communication	0.09	0.16
1. Wood Based Products	0.20	0.27	42. Other Services	0.09	0.17

Wholesale Price Index

Partial Elasticity: 0.28 Total Elasticity: 0.35