5. Pricing Rules for Postal Services

1. Cross-Subsidy-Free/First Best Prices for Postal Services

In the literature on pricing in public enterprises, marginal cost pricing is generally regarded as a first best/Pareto optimal rule. However, for a multi-product firm this may not be the best pricing rule. There are two reasons for this: (i) It may be difficult or even impossible, *a priori*, to allocate the costs among the various products; and (ii) since joint production often involves economies of scale there is always the risk that, if left to the free market, these enterprises may become natural monopolies. For both these reasons such enterprises must be regulated.

The next question, naturally, is: What should be the cost minimising (optimal) prices for jointly supplying commodities by a publicly regulated utility such as IPD? Given the long-run cost function for a public utility like IPD, the cost minimising or the first best prices for a given service can be computed as a weighted average of marginal costs of that service at different scales of operation of the firm.[1] The weights in this case are defined by the normalised incremental scales of an expanding firm. In the case of a short-run cost function of a public utility, we should distinguish between the variable cost and the fixed cost which may also be a joint cost. The variable cost component of the price of a given service jointly supplied with other services, may be computed as the weighted average of marginal costs of this service at different levels of operation of the firm. But the identification of joint/fixed cost component of the price of a given service poses formidable problems. The methods that are normally used for cost accounting among

1. See Chapter 7, Section 3, for details.

various services of a firm having output or revenue as basis are arbitrary in that they may not yield first best or cross-subsidy-free prices. However, there is one method, the attributable cost method, for the allocation of joint costs among various services which yields first best prices or cross-subsidy-free prices for public utilities having a particular class of cost functions.[2] Following this method the cross-subsidy-free prices (p_i) may be computed by using the following formula.

$$P_i = (c_i + \frac{c_i q_i}{q_i \Sigma c_i q_i} \times J) \qquad i = 1, 2, \ldots, N \quad (1)$$

$$P_i = c_i (1 + \frac{J}{A})$$

where

p_i : Cross-subsidy-free price of i^{th} service

c_i : Per unit attributable cost

q_i : Quantity of i^{th} service supplied

J : Joint cost

A : Attributable cost.

The data supplied by IPD about its cost structure during the years 1980-81 to 1985-86 provide details about various components of cost to each service. Some of the components may be regarded as joint costs while others are attributable costs to each service. We have no knowledge of the method followed by IPD for distributing joint costs among different services while calculating the average costs reported in Table 5.1. We have estimated attributable cost of each service by assuming that cost of printing and stationery and transport cost (by Railway Mail Service, Surface and Air) are

2. See Chapter7, Section 3, for details.

attributable costs. Then an estimate of joint costs of postal service is obtained by deducting the estimate of total attributable costs from the estimate of total economic cost reported in column (4) of Table 4.1. Given these estimates, we have made estimates of cross-subsidy-free prices for different postal services in India during the period 1981-82 to 1985-86. Table 5.2 presents these estimates.

A comparison of Tables 5.1 and 5.2 reveals that the estimates of cross-subsidy-free prices are significantly different from the estimates of per unit costs made by IPD for different services. The cross-subsidy-free prices are higher for all first class and second class unregistered mail services than the per unit costs calculated by IPD. The differences may in the main be attributed to some arbitrary method used by IPD for distributing joint costs among various services.

Table 5.3 provides estimates of average revenue per unit for different postal services. These may be regarded as implicit tariff rates for postal services which can be slightly different from statutory rates fixed by IPD for the first class and second class unregistered mail. However, for the registered mail they are averages since statutory rates vary with weight/amount of the mail. Now, a comparison of implicit tariff rates in Table 5.3 shows that the tariff structure of IPD is substantially different from the structure of cross-subsidy-free prices. Therefore the tariff structure of IPD for each year during 1981-82 to 1985-86 contributes to significant cross-subsidisation. The unregistered first class mail consisting of post cards, letter cards and letters and the second class mail comprising newspapers and other articles enjoy a fairly large subsidy at the cost of registered mail items. For example, during the year 1985-86, the implicit tariffs for post cards, letter cards and letters are respectively given as Re. 0.18, 0.35 and 0.70 while their corresponding cross-subsidy-free prices are Re. 0.87, Rs. 1.27 and 1.29. For a registered newspaper (single) the cross-subsidy-free price is Rs. 1.56 while the postal tariff is only Re. 0.11 during the year 1985-86.

TABLE 5.1

Estimates of Total Per Unit Cost of Postal Services

(in Rs.)

Item	*1981-82*	*1982-83*	*1983-84*	*1984-85*	*1985-86*
Post cards	0.45	0.50	0.54	0.61	0.67
Letter cards	0.50	0.56	0.59	0.71	0.77
Letters	0.51	0.57	0.60	0.69	0.76
Regd. newspapers					
(i) Single	0.51	0.58	0.66	0.75	0.82
(ii) Bundle	0.61	0.69	0.81	0.93	1.01
Book post					
(i) Book patterns	0.54	0.61	0.70	0.79	0.88
(ii) Printed Books	0.64	0.72	0.85	0.97	1.06
(iii) Other periodicals	0.69	0.78	0.93	1.06	1.16
Parcels	3.89	4.40	5.73	6.63	7.20
Registration	3.23	3.58	3.91	4.32	4.88
Value payables(VPP)	1.94	2.37	2.68	2.96	2.48
Insurance	4.73	4.87	5.26	5.89	6.67
Acknowledgements	0.40	0.45	0.48	0.55	0.61
MO	4.29	4.66	5.26	5.93	6.83
TMO	4.01	4.53	5.31	5.82	6.54
IPO	2.09	2.32	2.66	3.02	3.51
Savings Bank	2.27	2.50	2.98	3.25	3.48
Saving Certificates	3.28	3.47	4.13	4.43	5.48
BRLs	4.45	4.47	5.92	6.29	-
Recorded delivery	-	-	1.92	3.24	3.59

TABLE 5.2

Cross-Subsidy-Free Prices for Postal Services

(in Rs.)

Item	*1981-82*	*1982-83*	*1983-84*	*1984-85*	*1985-86*
Post cards	0.61	0.66	0.71	0.73	0.87
Letter cards	0.77	0.91	0.89	1.12	1.27
Letters	0.82	0.94	0.94	0.96	1.15
Regd. newspapers					
(i) Single	0.84	1.00	1.24	1.32	1.56
(ii) Bundle	1.18	1.41	1.93	1.99	2.33
Other unregd. articles					
(i) Book patterns	0.91	1.07	1.33	1.41	1.69
(ii) Printed books	1.23	1.47	1.93	2.08	2.44
(iii) Other periodicals	1.41	1.67	2.23	2.40	2.81
Registration	3.09	3.52	3.53	3.59	4.33
Acknowledgement	0.47	0.55	0.54	0.57	0.69
Parcels	7.41	8.79	12.94	14.23	16.65
VPP	0.27	0.27	0.23	0.46	1.29
Insurance	3.74	4.12	3.93	4.38	5.79
MO	0.76	0.88	0.84	0.91	1.27
TMO	0.76	0.88	0.84	0.91	1.27
IPO	0.61	0.64	0.57	0.99	1.25
Savings Banks	0.31	0.35	0.30	0.34	0.60
Saving Certificates	0.11	0.19	0.15	0.14	0.25
BRLs	0.37	0.36	0.35	0.42	
Recorded delivery	-	-	0.14	3.54	0.30

TABLE 5.3

Average Revenue on Tariff of Postal Services

(in Rs.)

Item	*1981-82*	*1982-83*	*1983-84*	*1984-85*	*1985-86*
Post cards	0.15	0.16	0.16	0.17	0.18
Letter cards	0.25	0.33	0.35	0.35	0.35
Letters	0.51	0.66	0.71	0.69	0.70
Regd. newspapers					
(i) Single	0.07	0.10	0.10	0.10	0.11
(ii) Bundle	0.20	0.26	0.26	0.27	0.30
Book post					
(i) Book patterns	0.38	0.43	0.44	0.44	0.53
(ii) Printed books	0.19	0.28	0.29	0.28	0.33
(iii) Other periodicals	4.47	0.48	0.50	0.51	0.45
Parcels	4.28	4.19	5.73	5.64	7.24
Registration	2.29	2.75	2.75	2.75	2.75
VPP	1.27	1.25	1.27	2.39	2.28
Insurance	5.36	5.37	5.26	8.43	7.56
Acknowledgement	0.30	0.30	0.30	0.30	0.30
MO	2.89	3.50	3.73	3.71	4.30
TMO	2.80	2.80	2.84	2.65	2.67
IPO	0.25	0.33	0.41	0.48	0.46
Savings banks	1.95	1.93	2.19	3.33	3.96
Saving certificates	2.63	2.59	2.97	4.82	5.87
BRLs	4.48	4.70	4.77	4.91	-
Recorded delivery	-	-	1.00	1.00	1.00

Table 5.4 provides the estimates of rates of subsidies for the first class mail and the registered newspapers (single) during the period 1981-82 to 1985-86.

Newspapers have the highest per unit subsidy followed by letter cards, post cards and letters. Table 5.5 provides mark-up over cross-subsidy-free prices for some of the registered mail services. For most of the registered mail items (with the exception of parcels, registered letters and IPOs), there are positive mark-ups over cross-subsidy-free prices. During 1985-86, money orders, savings banks and savings certificates have mark-ups respectively of Rs. 3.03, 3.36 and 5.62

Table 5.6 provides estimates of total subsidies/profits for different postal services during the period 1981-82 to 1985-86. Out of 17 services reported in the table there were 7 profit-earning services during the year 1985-86. Table 5.7 provides our estimates and the estimates of IPD for budgetary deficit of the Department of Post. Our estimated deficits are substantially higher than the estimates of IPD. The differences between these two estimates are attributable to differences in the definition adopted by IPD. The differences between our cost estimates and cost estimates of IPD arise mainly because of differences with respect to treatment of cost of capital services and inter-departmental transfers. Our estimate of cost of capital services includes depreciation as well as return on capital in the alternative uses in the economy while IPD takes only depreciation as the cost of capital services. Inter-departmental payments like recoveries made by IPD for the agency services like postal savings and savings certificates, are mere transfer flows which will not be relevant for the estimation of economic cost of IPD. For example, if these payments are made by the Ministry of Finance, they should be almost treated as a subsidy given by this Ministry to IPD for providing these services.

TABLE 5.4

Rates of Subsidies for First Class Mail and Registered Newspaper (Single)

Item	*1981-82* (1)	*1982-83* (2)	*1983-84* (3)	*1984-85* (4)	*1985-86* (5)
Post cards	-0.46	-0.50	-0.55	-0.56	-0.69
Letter cards	-0.52	-0.58	-0.54	-0.77	-0.92
Letters	-0.31	-0.28	-0.23	-0.27	-0.45
Newspapers					
(single)	-0.77	-0.90	-1.13	-1.22	-1.45
(bundle)	-0.98	-1.15	-1.67	-1.72	-2.03

TABLE 5.5

Estimates of Mark-Ups Over Cross-Subsidy Free Prices for Some Registered Mail Services in India During 1981-82 to 1985-86

Item	*1981-82* (1)	*1982-83* (2)	*1983-84* (3)	*1984-85* (4)	*1985-86* (5)
Parcels	-3.13	-4.60	-7.21	-8.59	-9.41
Registered letters	-0.80	-0.77	-0.78	-0.84	-1.58
VPP	0.99	0.98	1.04	1.93	0.99
Insurance	1.62	1.25	1.33	4.05	1.77
Money orders	2.13	2.62	2.89	2.80	3.03
IPOs	-0.36	-0.31	-0.16	-0.51	-0.79
Savings banks	1.64	1.58	1.89	2.99	3.36
Savings certificates	2.52	2.40	2.82	4.68	5.62
BRLs	4.11	4.34	4.41	4.93	-

TABLE 5.6

Cross-Subsidisation of Postal Services

(Rs million)

Item	*1981-82*	*1982-83*	*1983-84*	*1984-85*	*1985-86*
1. Post cards	-437.55	-487.67	-527.01	-487.26	-621.21
2. Letter cards	-450.39	-485.98	-468.2	-621.02	-776.02
3. Letters	-443.21	-439.83	-332.44	-385.34	-649.40
4. Regd letters					
(i) Single	-162.93	-214.56	-254.36	-267.67	-335.53
(ii) Bundle	-31.26	-40.94	-56.11	-73.27	-70.24
5. Book post					
(i) Book pattern	-129.11	-147.39	-219.56	-222.81	-282.92
(ii) Printed books	-46.49	-50.46	-74.78	-.76.68	-94.74
(iii) Other periodicals	-22.00	-26.06	-40.66	-41.01	-54.99
6. Parcels	-194.37	-294.86	-423.95	-42.21	-580.60
7. Registration	-194.56	-197.43	-207.87	-231.25	-421.86
8. VPP	+12.47	+12.35	+12.27	+22.97	+10.49
9. Insurance	+13.77	+10.88	+13.17	+38.48	+16.64
10. Acknowledgements	-29.61	-49.11	-46.78	-52.73	-79.09
11. MO	+252.83	+319.38	+360.67	+365.96	+378.45
12. TMO	+5.54	+6.81	+7.51	+7.56	+8.18
13. IPO	-5.80	-5.30	-3.31	-10.46	-18.96
14. Savings banks	+350.14	+362.14	+402.00	+679.93	+803.04
15. Saving certificates	+29.23	+36.48	+51.61	+126.83	+195.58
16. BRLs	+48.91	+64.67	+53.36	+63.60	-
17. Recorded delivery	-	-	+7.05	+21.59	+6.16

TABLE 5.7

Estimates of Budgetary Deficits of IPD

(Rs. million)

Item	*1981-82*	*1982-83*	*1983-84*	*1984-85*	*1985-86*
IPD Estimates	881.5	839.9	732.3	1242.5	1635.5
Our Estimates	1355.9	1408.2	1382.8	1935.7	2516.2

Therefore, our estimates of costs are fully attributable to resources used by IPD, namely, labour, capital and material inputs. But whatever may be the magnitudes of these deficits, they have to be financed from the general revenues of Union Government.

Given that there have been substantial budgetary deficits even after allowing cross-subsidisation by the department, the problem is to determine the tolerable level of budgetary deficit for IPD. Since budgetary deficits have to be met from the general revenue, there is a trade-off between cross-subsidisation and budgetary deficit. The optimum levels of cross-subsidisation and budgetary deficits for IPD have to be determined as part of the overall revenue policy of the government. The next section discusses some issues related to this problem.

Finally we recommend the following rule for computing cross-subsidy-free prices for its services:

Rule 1: Cross-subsidy-free prices for a public utility with joint production are the first best prices or Pareto optimal prices. In computing these prices for the Indian postal services, the attributable cost method as described above can be followed for determining the joint cost component of the price of each service.

2. Distributional Equity and Prices for Indian Postal Services

We have observed in the preceding section that the actual tariffs/prices charged by the postal department are different from

the cross-subsidy-free prices for its various services. Also, there has been a budgetary deficit for IPD (even after cross-subsidisation) which has had to be financed from general revenues of the government. The question that arises then is : Why does IPD have prices for its services which are substantially different from the cross-subsidy-free prices?

In the theory of public sector pricing there are various arguments for the deviations from the first best marginal cost prices. Several such arguments are also relevant for a public utility supplying jointly many commodities. Some such arguments are:

a. Deviations from cross-subsidy-free prices may be necessitated because of differences in the market structure for different services. In several market situations the IPD does not enjoy monopoly power. Therefore, a crucial distinction may have to be made between monopoly services and competitive services. Some services of IPD may also be provided by private agencies. For example, private agencies supply parcel services as well as courier services for first class mail. Also, with the existence of a well developed banking system the supply process of money order services, postal savings and postal orders have to be fixed after taking into account supply prices of similar services charged by banks. To protect its share of the market for these services, IPD may have to supply these services at subsidised (competitive) prices while charging (near) monopoly prices for other services. Given the revenue constraint of IPD, this may result in cross-subsidisation.

b. The IPD may like to fix its prices after taking into account the effects of these on the equity and efficiency objectives of the government, and the overall budgetary situation. Such prices are known as second best or Ramsey prices. In this section we estimate these prices for some categories of postal services. Below we describe the methodology adopted.

The postal services in general may be regarded as necessities with very inelastic demand with respect to price and income which is confirmed by the following estimated demand function for the postal services in India.

$$\ln D = 5.835 - 0.401 \ln p + 0.116 \ln Y + 0.059 t \quad (2)$$

[5.236] [-3.920] [0.663] [7.047]

[1.115] [0.102] [0.175] [0.008]

$R^2 = 0.986$, DWS = 1.512

where

D : Total demand for postal services expressed in post card equivalent units.

p : Index number of postal tariffs.

Y : Gross national product at constant prices.

t : Time.

(Figures in brackets give respectively t ratios and standard errors.)

This demand function is estimated using time-series data from 1950-51 to 1983-84. The own price elasticity of demand for postal services in India is -0.401 while the income elasticity is 0.116 with an exponential time trend of 0.059. The own price elasticity and exponential time trend are statistically significant at 5 per cent level. Given the poor quality of the data, we have not attempted to estimate a complete demand system for Indian postal services to test for inter-service substitution possibilities. As such, one may expect statistically significant cross-price elasticities of demand among first class mail services like letters, letter cards and post cards. Also the first class mail items being very essential services, demand for them can be relatively inelastic with respect to prices and income in comparison to demand for registered mail items.

To compute second best prices we need data about consumer

expenditure on each mail item by income/expenditure classes to comment on the relative importance of a given service from the point of view of distributional equity. Such data are simply not available, but there exist estimates of the distribution of demand for some postal services by various sectors like Government, Business and Households during the year 1986-87. A Report on Postal Traffic Survey conducted by the Department of Posts, Government of India provides these estimates. Table 5.8 provides estimates of percentage distribution of traffic originating from different sectors for first class mail items while Table 5.9 provides the same information for registered mail items. In the case of first class mail services, households' demand accounts for 89.78 per cent of post cards and letter cards, 49.32 per cent of envelopes and 72.73 per cent of total unregistered mail while the respective demands of business account for 9.27, 35.04 and 19.87 per cent and of government account for 0.95, 15.64 and 10.60 per cent. Table 5.10 provides estimates of distribution of postal traffic by rural and urban sectors.

From the point of view of income distribution, government is assumed to favour household demand over demand by business and its own demand. In order to compute second best prices taking into account governmental distributional preferences for various services, we consider three hypothetical scenarios of structure of governmental preferences. The distributional preferences of government depend upon its value judgement about income distribution in the economy. Each scenario represents a certain degree of governmental preferences for income distribution. The three scenarios A, B and C can be ordered in terms of degree of governmental distributional preferences in the sense that C implies stronger distributional preferences than B and B than A. Table 5.11 presents the income distributional weights to demands for postal services by government, business and households under three scenarios, assuming in each case preferences of government for its own demand for postal services as numeraire.

TABLE 5.8

Unregistered Mail By Users During 1986-87

Users	*Post Cards. Letter card*	*Envelopes*	*Secondary unregd.*	*Total unregd.*	*Unregd. Parcels*
Government	0.95	15.64	10.60	7.40	57.62
Business	9.27	35.04	20.77	19.87	29.97
Households	89.78	49.32	68.63	72.73	12.41

TABLE 5.9

Percentage Distribution of Various Categories of Registered Post by Users During 1986-87

Users	*Regd. Letters*	*VP Letters*	*Insured Letters*	*Insured VP Parcel*	*Utilisation of Parcel*
(1)	(2)	(3)	(4)	(5)	(6)
Government	20.21	9.92	4.88	0.94	44.59
Business	50.22	48.58	8.82	11.21	37.44
Households	29.57	41.60	86.30	87.85	17.97

Users	*Utilisation of VP Parcel*	*Insured Parcel*	*Insured VPP*	*MO*
	(7)	(8)	(9)	(10)
Government	13.44	6.22	4.97	3.59
Business	17.65	63.91	81.99	13.62
Households	68.91	29.87	13.04	82.79

TABLE 5.10

Percentage Distribution of Various Postal Services by Rural and Urban Sectors in India

	Urban	*Rural*
1. Post cards	62.3	37.7
2. Inland letter	63.8	36.2
3. Envelopes	71.2	28.8
4. Registered newspapers	77.02	22.98
5. Book post	78.05	21.95
6. Registered letters	87.5	12.5
7. V P letters	89.19	10.81
8. Insured letters	93.73	6.27
9. Insured V P letters	0.67	0.33

Now the distributional characteristic (R_j) of i^{th} postal service can be estimated as

$$R_j = b_1 w_{1j} + b_2 w_{2j} + b_3 w_{3j} \qquad (3)$$

where

b_i : Distributional weight to traffic demand of i^{th} sector, i = 1,2,3.

w_{ij} : Proportion of i^{th} sector's demand in total demand for j^{th} service.

Table 5.12 provides the estimates of distributional characteristics of inland letter cards, envelopes, registered newspapers and book post, registered letters, VP letters and insured letters under alternative scenarios of income distributional preferences of government. As expected, inland letter cards are distributionally more important with the highest distributional characteristic. Then follow insured letters, registered newspapers, envelopes, etc., in declining order

from the point of view of income distribution. Registered letters have the least priority with the lowest income distributional characteristic in two of the scenarios.

TABLE 5.11

Distributional Weights (b_i) to Postal Tariff Demands for the Three Sectors under Alternative Scenarios

Sector	*Scenarios*		
	A	*B*	*C*
1. Government	1.00	1.00	1.00
2. Business	0.75	0.50	0.25
3. Households	1.25	1.50	1.75
b	1.00	1.00	1.00

TABLE 5.12

Estimates of Distributional Characteristics of Postal Services under Alternative Scenarios

Scenario	*Inland letter.*	*Envelopes*	*Registered newspapers & book post*	*Registered letters*	*VPL*	*Insured letters*
(1)	(2)	(3)	(4)	(5)	(6)	(7)
A	1.201	1.036	1.120	0.948	0.923	1.193
B	1.403	1.071	1.239	0.897	0.925	1.385
C	1.604	1.107	1.359	0.845	0.928	1.578

Source : Estimated as explained in the text.

For a public utility having equity and efficiency objectives and a revenue constraint in fixing prices for its services, the optimal (second best) prices (p_i) can be estimated by using the following formula :

$$\frac{p_i - m_i}{p_i} = \frac{(1-\bar{b}\,R_i)}{|e_i|}, \quad i = 1, 2, \ldots, N \qquad (4)$$

where

m_i : Cross-subsidy-free price/full cost price of i-th service.

p_i : Consumer of i-th service.

e_i : Own price elasticity of demand for the i-th service.

b : Average of income distributional weights.

Using this formula, p_i can be estimated given the estimates of m_i, R_i, b and e_i. We have obtained the estimate of aggregate price elasticity of demand for postal services as -0.401 which we assume to be the same for all the services. Table 5.2 and 5.12 respectively provide estimates of m_i and R_i for different postal services while Table 5.11 provides estimates of B_j and b under alternative scenarios. Given all these estimates, we have obtained the estimates of second best prices for some of the postal services for the year 1985-86, as given in Table 5.13.

A comparison of second best prices with first best/ cross-subsidy-free prices shows that, out of six services we have considered in Table 5.13, only two services, viz., registered letters and VP letters have second best prices higher than the cross-subsidy-free prices. As expected, inland letter cards have highest subsidy followed by insured letters, registered newspapers and envelopes.

TABLE 5.13

Estimates of Second Best Prices for Various Postal Services under Alternative Scenarios During 1985-86

(in Rs.)

Scenario	*Inland letter*	*Envelopes*	*Registered newspapers & book post*	*Registered letters*	*VPL*	*Insured letters*
(1)	(2)	(3)	(4)	(5)	(6)	(7)
A	0.85	1.06	1.20	4.98	1.45	3.91
	(-0.50)	(-0.09)	(-0.30)	(0.13)	(0.11)	(-0.48)
B	0.63	0.97	0.98	5.85	1.59	2.95
	(-1.01)	(-0.18)	(-0.60)	(0.26)	(0.19)	(-0.96)
C	0.51	0.91	0.82	6.98	1.57	2.37
	(-1.51)	(-0.27)	(-0.90)	(0.38)	(0.18)	(-1.44)

Note : Figures in parentheses represent the ratio of difference between consumer price and full cost price and the consumer price.

Source : Estimated as explained in the text.

Comparison of the estimates of second best prices for alternative scenarios about income distributional preferences of government indicates that the price subsidies on post cards, insured letters, registered newspapers and envelopes have increased and the mark-up over full cost price is increased for registered mail as distributional preferences of government grow stronger (for example a change from scenario A to scenario C). Given a balanced budget constraint for IPD, this indicates cross-subsidisation among postal services. That means profits earned from the registered letters have to be used by IPD to subsidise inland letter cards, registered newspapers, etc.

3. Conclusions

One of the important characteristics of IPD is that it has been having cross-subsidisation with budgetary deficits. That means price subsidies to some of its services are financed partly from cross-subsidisation and partly from general revenue. The cross-subsidy-free prices that are estimated using the attributable cost method for computing joint cost component of price of each service are much different from the actual prices charged by IPD for its services. All the first class mail items, newspapers, parcels, registered letters, and IPOs have subsidies while VPP, insurance, money orders, savings banks, savings certificates etc., have the actual prices higher than the cross-subsidy-free (full cost) prices. The estimates of budgetary deficits that are made taking cross-subsidy-free prices as base are much higher than the budgetary deficits declared by IPD during the period 1981-82 to 1985-86. This may be attributable to differences between our estimates of economic cost and estimates made by IPD.

The main problem then is to look for the justification of subsidies for some services at the cost of higher prices for other services and a budgetary deficit. Cross-subsidisation is shown to be justified if the IPD as a public utility has the objectives of efficiency, equity and a balanced budget. We also considered two other alternative scenarios of subsidies for some of the postal services. In one scenario, we had subsidies for some services with a matching budgetary deficit of IPD and this deficit was financed from the general revenues of the government. Another scenario considered was the one that represents the current practices of IPD for fixing prices for its services, i.e., subsidies to certain services the financing of which is shared by cross-subsidisation and budgetary deficits made good from the general revenue.

As they are very essential, postal services should have very low price elasticity of demand. The price elasticity of aggregate demand for the Indian postal services is -0.401. The estimates of sectoral distribution of demand for postal services show that household

sector consumes 72.73 per cent of unregistered mail services and 29.57 per cent of registered mail services. If the government/IPD has distributional preferences in favour of consumption of postal services by household sector in comparison to its own consumption and consumption by business sector, these preferences have to be reflected in the prices it charges for various services. Estimates of prices for Indian postal services under three alternative scenarios of income distributional preferences of the government show that first class mail items, newspapers, etc., have price subsidies while the registered letters have prices higher than the full cost prices. Therefore, if IPD has an equity objective with a revenue constraint, subsidies for some of its services are justified at the cost of prices higher than full cost prices for other services.