7.1 The relation between final product prices and transfer prices

Having gone into the theory of the causes for transfer pricing estimates of transfer pricing were prepared for the drugs and pharmaceutical industry in India. The consequences of transfer pricing were examined and the possible course of government policy to mitigate the consequences were also stated. An aspect of government policy is its pricing policy which has a bearing on transfer pricing, in as much as prices in the drugs and pharmaceutical industry in India are controlled, and the manner in which these prices are determined induces transfer pricing. That controlled prices have a bearing on transfer prices does not in any way affect the conclusions arrived at earlier. The effect of controlled prices on transfer pricing needs to be viewed as an additional cause of transfer pricing.

Price controls could operate in the following manner. We are considering the different cases of price control as they have actually operated in India for formulation prices in the drugs and pharmaceutical industry and the following section briefly traces the history of price controls in the industry. One could distinguish between the following cases. First, the case of price freeze, i.e., where prices
of formulations are frozen at the existing levels. Second, where the formulation price is determined by considering the exfactory cost plus a mark up. That is to say for given exfactory cost, the profitability is defined in terms of a mark up. Third, a profitability restriction is imposed in terms of the maximum ratio of gross profits to sales. That is to say, that profitability is defined in a manner different from that in the second case. Four, where the price is determined by considering exfactory cost plus a mark up but simultaneously a profitability restriction is imposed in terms of pretax profits on sales. In other words, the profitability defined in the second and the third case are simultaneously operative in the fourth case. Furthermore, in the fourth case leader prices may be fixed by the government. That is to say that the prices of a particular company, usually a TNC, would serve as leader prices for all the units producing that particular formulation.

We will consider those cases of price control which induce transfer pricing.

8.11 In the Drug Price Control Order (DPCO) of 1970, all formulations were priced in the following manner. Permissible formulation price = exfactory cost + prescribed mark up.

The mark up was expressed as a percentage of the exfactory cost and ranged between 75% and 150%. Now, how would price control defined in this manner induce transfer pricing?
Suppose, the actual mark up in the case of a TNC formulation was 300% prior to the Drug Price Control Order of 1970. Further suppose the relevant mark up for this formulation in the DPCO 1970 is 150%. This means that the formulation price would fall. The least that the TNC would do is to see that the price does not fall. The only way of ensuring that the price does not fall, is to jack up the exfactory cost. The TNC would jack up the exfactory cost by over invoicing its imports either from a parent or an affiliate. In this manner, price control induces transfer pricing.

This could also be considered algebraically. A cost price equation is given below.

\[
p = u + pf
\]

where \( p \) is the formulation price, \( u \) is the average exfactory prime cost or the unit prime cost, i.e., the cost of raw material and wages. The average exfactory cost or unit prime cost would include unit transfer price. \( pf \) is the average or unit profits.

Prior to the imposition of price control, the mark up,

\[\text{1 Multiplying by output } q', \text{ we get, Aggregate proceeds } (pq) = \text{ Aggregate prime costs } (uq) + \text{ Aggregate pretax profits } (pfq).\]

\[\text{2 A unit transfer price } (\Pi) \text{ would be the weighted average of all the prices at which a firm imports various commodities where the weights are provided by the quantities of various imports.}\]

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pf/u = 300% in our illustration. With the imposition of price control, the mark up, pf/u now is, $= 150\%$. With unchanged average exfactory cost, both average profits and the formulation price would fall.

\[ p = \frac{1}{1} u + pf \]

pf, the average profits now would be $< pf$ and $p < p$. The TNC would ensure that the price in the very least does not fall. To do this, it will overinvoice its imports from the parent or affiliate and thereby inflate the average exfactory cost in such a manner that the prescribed mark up $pf/u = 150\%$ and the price does not fall. The new cost price equation, after transfer pricing would be like,

\[ p = \frac{1}{1} u + pf \]

\[ u > u \text{ and} \]

\[ Pf > pf > pf \]

Note that the declared average profits of the TNC affiliate after transfer pricing would fall but the actual average profits and the price remains unchanged.

8.12 The Drug Price Control Order 1970 had an alternative scheme of formulations pricing, involving a profitability restriction of 15% gross profits on sales. That is, this was the maximum possible gross profit on sales permissible for purposes of formulation pricing.

Here, one needs to distinguish between two different situations, one, the short run, where the capacity is fixed, and two, the long run, where the capacity can be increased, and, the necessary license for this obtained, and the
additional investment carried out. The only restriction on the TNC is that it must price its formulations such that the gross profits to sales does not exceed 15%.

In the short run, where the capacity is given, assuming 100% capacity utilization and that all output is sold, i.e., there is no addition to the inventory, both maximum output and maximum sales would be determined, and the maximum output = maximum sales. The TNC can now earn at the most only 15% gross profits on maximum sales. This means the maximum gross profits would also get determined such that gross profits/sales = 15%. This also means that the maximum average profits or the maximum unit profits would also get determined. Average profits = gross profits/output and the maximum output is fixed, as capacity is fixed.

In the short run, with given capacity, suppose a TNC unit, was earning 30% gross profits/sales prior to the imposition of price control. We also assume that the firm was operating at 100% capacity utilization and that all output was sold. With the imposition of price controls, the maximum gross profits would fall, the maximum average profits i.e., at full capacity utilization, would fall and with the average exfactory cost unchanged the formulation price would have to fall. The least that the TNC would do is to ensure that the formulation price does not fall. It will inflate its average exfactory cost by overinvoicing its imports from its parent or its affiliate.
Algebraically, if the cost-price equation prior to the imposition of price control, is given by,

\[ p = u + pf \]

where \( p \) is the formulation price being charged by the TNC prior to the imposition of price control, \( u \) the average exfactory cost or the unit prime cost, and \( pf \) the average or unit profits. In our illustration, the TNC is earning a gross profits/sales = 30%.

With the imposition of price controls the maximum permissible gross profits/sales would be = 15%.

The new cost price equation, would be,

\[ p \quad < \quad u + pf \]

\[ p \quad < \quad p \quad \text{and} \quad pf \quad < \quad pf \]

The average or unit profits would fall because the maximum gross profits it can earn would fall, since capacity is given, determining the maximum possible output. With the average or unit profits falling and the average exfactory cost remaining unchanged the price would fall.

The question arises what about competition? This boils down to the question of competition between the large units on the one hand, who broadly charge a similar price and the smaller units who charge lower prices. The large units are able to charge the price they do because the market can bear the price they charge, and the only way the small units can compete with the large ones is by charging a lower price. Since the price controls do not normally apply to the small units and apply only to the large units, the question of
competition would not be directly relevant. The large units would in the least resist any fall in the price.

Since the least the TNC would do is to ensure that the price does not fall, it will overinvoice its imports from its parent or affiliate, inflating thereby its exfactory cost, while ensuring that the gross profits/sales = 15%. The cost price equation after transfer pricing, would be,

\[ p = u + pf \]

\[ u \geq u \]

\[ pf < pf \]

\[ pf \]

is the average or unit profits at the maximum possible output with given capacity and the maximum permissible gross profits/sales = 15%. With transfer pricing, the declared profits of the TNC unit would fall but the actual profits and the price would remain unchanged.

8.13 In the Drug Price Control Order (DPCO) of 1979, for calculating retail prices of formulations,

formulation price = average exfactory cost + prescribed mark up. The mark up was calculated as a percentage of average exfactory cost and varied between 40% and 100% depending on the category of formulations. An overall ceiling of pretax profits/sales for formulations in the range of 8% to 13% was prescribed. Further, the government would fix leader prices' which would be ceiling prices and would be based on the average costs of an efficient producer.
This case of price control involves the simultaneous consideration of 8.12 and 8.11, discussed above.

Suppose, the TNC unit was charging a mark up, pf/u = 200% prior to the imposition of price control, the prescribed mark up, pf/u = 100%. Further, suppose that the TNC unit, prior to the imposition of price control was earning, gross profits/sales = 26% and with the imposition of price control, the maximum gross profits/sales it can now earn is 13%. We will consider the short run where the capacity is fixed. The maximum gross profits which can be earned at full capacity, would fall, because capacity is fixed. Average or unit profits would fall and with the average exfactory cost remaining unchanged, the formulation price would fall. The effect of introducing the two conditions is to depress the price. The only effort on the part of the TNC would be to see that the price does not fall.

If the cost price equation prior to the imposition of price control is given by,

\[ p = u + pf \] 

which could be termed the primary equation, and where p is the formulation price, u the average exfactory cost and pf the average or unit profits. The first condition is that the mark up is depressed, i.e., pf falls to pf \(_u\) where pf \(_u\) < pf. The effect of introducing this condition is to simply depress the price.
\[ \frac{1}{p} = u + \frac{1}{pf} \quad \ldots \ldots \ldots (2) \]

where \( p \)

\[
gross \ profit/sales = \frac{pf \cdot q}{p \cdot q} = \frac{pf}{p} \]

where \( pf \) is unit profits, \( p \) the price and \( q \) the quantity.

A reduction in the gross profits/sales ratio, implies that \( \frac{1}{pf/p} \) falls to \( pf/p \) where \( pf < pf \).

While \( pf \) falls to \( pf \), the price remains unchanged, since the least the TNC would do is to defend the price. The only way that this can happen is by jacking up \( u \), which leads us to the third equation,

\[ \frac{1}{p} + \frac{1}{u} = u + \frac{1}{pf} \quad \ldots \ldots \ldots (3) \]

\[ u \geq u \text{ and } pf < pf \]

Further, for particular formulations the government may fix leader prices. These prices are fixed on the basis of the average costs of an efficient producer. These leader prices constitute ceiling prices for all units producing the particular formulation. Since the industry is dominated by TNCs, it is likely that TNCs are selected for constituting the leader prices. The entire discussion carried out immediately above would be applicable here. With a reduced mark up and reduced gross profits to sales ratio, the TNC unit would inflate its average exfactory cost by over invoicing its imports from its parent or affiliate, and thereby prevent any fall in the formulation price, while defining leader prices.
Price controls therefore induce transfer pricing to enable TNC units to inflate the average exfactory costs and prevent any fall in formulation prices.

It is however true that a non-TNC i.e., a large Indian firm may be chosen for defining leader prices or chosen as leader, in which case price controls would not induce transfer pricing.

8.14 In the case of a price war being engaged in by a subsidiary or where the parent is helping its subsidiary to begin operations, underinvoicing of imports may be used by the subsidiary to reduce costs.

Where the subsidiary has an established market and is presently engaged in a price war, its cost-price equation would be, given by,

---

3 We have seen that the TNC unit in the face of price controls tries to defend its price, and uses transfer pricing to prevent the formulation price from falling. Prior to the imposition of price controls, what is it that determines the formulation price which the TNC unit is charging? In the drugs and pharmaceutical industry in India, TNCs dominate the industry with large shares in the markets of the formulations which they produce. A theory of price formulation that would be useful and could be applied to explain the formulation prices charged by TNCs is that of Kalecki (1971). Prices are determined by the degree of monopoly. By the degree of monopoly is meant the power which a particular firm has in determining its price or what is the same thing, the extent of positive deviation of its price from the average. Consequently, given the prime costs, the degree of monopoly is also the power of a firm in determining its own level of profits. Among other reasons, the degree of monopoly is itself determined by the market share of the particular firm.
\[ p = u + pf \]

where 'p' is the average price, 'u' the unit prime costs and 'pf' the average profits. Underinvoicing of imports, would mean lowering of unit prime costs and with average profits unchanged, the price would fall.

If \( u \) is the new unit prime cost, inclusive of the underinvoiced imports,

\[ 1 \]

\( u < u \)

and \( p < p \)

where \( p = u + pf \), the new cost-price equation.

Theoretically, underinvoicing of imports could be a means for providing funds to the subsidiary.

The original cost price equation would be given by,

\[ p = u + pf \]

where \( p \) is the average price, \( u \) the unit prime costs and \( pf \) the average profits.

With underinvoicing of imports by the subsidiary, the unit prime costs would fall.

\[ 1 \]

\( u < u \)

where \( u \) is the new unit prime cost inclusive of underinvoiced imports. With prices unchanged, the average profits would rise.

\[ 1 \]

\( pf > pf \)

where \( p = u + pf \), the new cost-price equation.
In other words, the costs of the subsidiary are lowered by allowing the subsidiary to underinvoice the imports from its parent. To the extent that the costs are lowered for the subsidiary, it means an increase in its unit profits and consequently funds are thereby made available to the subsidiary by the parent.

7.2 **Price Controls**

We will take this opportunity to briefly trace the history of price controls in the drugs and pharmaceutical industry in India. The history begins with a price freeze on medicines in 1963, coming in the wake of the Chinese aggression and the declaration of emergency (Hathi, 1975, p. 174). Prices remained frozen until 1966, when the government introduced selective increase in prices and also referred to the Tariff Commission 17 essential drugs and formulations based on them for cost investigation (Hathi, 1975, p. 174 and Jayaraman, 1979). The Tariff Commission submitted its report in 1968 and based on this, followed the Drugs (Prices Control) Order in 1970. The objectives of this order were to eliminate excessive profits and to bring down the prices of essential drugs. Going by the recommendations of the Tariff Commission, the government fixed the prices of 17 essential bulk drugs, while the selling prices of other bulk drugs, were frozen at the level prevailing immediately prior to the order. Henceforth, the sale prices of bulk drugs whether manufactured locally or imported, could not be raised without the permission of the
government. In regard to formulations, they were to be priced with a mark up of 75% on exactory cost and the mark up included a provision for freight, commission, promotional expenses and the manufacturer's margin. Formulations involving original research in basic drugs in India were allowed an even higher mark up of 150%. The firms if they chose, could opt for an alternative scheme of pricing. That is, if they chose not to price their formulations using a mark up of 75%, then they could price their formulations using a profitability restriction, defined as 15% gross profits on sales. Prices of formulations once fixed, required approval in case of revision. Prices of all formulations in different packs manufactured by all units having a total sales of more then Rs. 50 lacs were subject to control (Hathi, 1975).

The Drugs (Prices Control) order in 1979, replaced that of 1970. The government was empowered to fix the maximum sale prices of selected bulk drugs manufactured in the country. In determining the sale prices of these drugs, the government would take into account the exactory cost of an efficient producer, and allow a reasonable return on net worth. For bulk drugs in the production of category 1 and 2 formulations, a return on 14% post tax on net worth (equity plus free reserves) was allowed (ET, 1986 b). The order prescribed a formula for calculating the retail prices of formulations, which had two components, the exfactory cost and mark up. The exfactory cost is a sum of the raw material costs, conversion charges and packing charges. For
calculating conversion costs and packing charges, certain norms were prescribed. The mark up was calculated as a percent of exfactory costs and was not to exceed 40% in the case of category I formulations and 55% in the case of category II formulations. The retail prices of category III formulations were to be fixed by the government for each individual manufacturer, and the mark up premissible for this category was 100%. Category IV formulations were outside the ambit of price controls. The government was also empowered to fix 'leader prices' for formulations in categories I, II and III, which would be based on the costs of an efficient manufacturer and would constitute ceiling prices, even for the units in the small scale sector. Further, the new order, prescribed an overall ceiling of pretax profit on sales, of formulations in the range of 8% to 13% depending upon the size of the unit, the level of basic drug activity and the existence of R and D (ET, 1986b).

Any system of price control would have the following objectives:
One, ensure reasonable and steady prices.
Two, ensure adequate supplies.
Three, ensure only reasonable margins for the manufacturers; and
Four, ensure quality.
The evaluation of the Drugs (Prices Control) Order 1979. would have to be in these terms.
As far as total production is concerned, there is no evidence of the Drugs (Prices Control) Order, 1979, having had adverse consequences. Between 1981 and 1985, the total output of formulations increased by 52%. The index of wholesale prices for drugs increased by 41% between 1981 and 1985 while the increase in the case of the general price level was only 36% (Bidwai, 1985).

The profitability has in fact increased and this has been achieved by altering the product mix in favour of formulations that are not subject to price controls and by increasingly manufacturing formulations rather than bulk drugs. The Drug policy of 1978 had specified a ratio of 1:5 for bulk drugs and formulations but the actual ratio of bulk drug production to formulations production has been 1:11. For the top 30 companies, the gross profits increased by 55.8% between 1982 and 1985 (Bidwai, 1985).

Several big firms, both Indian and foreign have moved review petitions with the ministry and managed to ensure that these petitions are not quickly disposed of, enabling them thereby to charge the older higher prices. Besides, some firms have been marketing their products without any price approval. Further, some companies have succeeded in

---

4 The top 30 companies had increased their sales by 13% in 1983 and the increase was in the range of 15% to 18% in 1981 and 1982 (Bidwai, 1985).
obtaining stay orders from the high courts, by challenging the price control notifications on procedural grounds. There are no less than 33 products of 8 firms, where the higher prices can be charged, until the adjudication is complete.

The oligopolistic structure of the pharmaceutical market, dominated as it is by the TNCs in India, results in the TNCs charging much higher prices than the local units and this has been well documented by Agarwal et al (1972) and Choudhary (1984). These high prices, for given costs are after all, the basis for the large profits of TNCs in this industry. Agarwal's study compared the prices of 19 widely used formulations charged by the TNCs with those charged by the local units in 1972 and all but one of these formulations fell outside the purview of the Drug (Prices Control) Order 1970. In the case of the 18 formulations whose prices fell outside the purview of the DPCO 1970, the variation between the highest price charged by a TNC and the lowest price charged by a local unit, small or large ranged between 80% and 1166.7%. Chaudhary estimated the price differential for a larger sample of 54 formulations in 1978. In the case of 50 of these formulations, the TNC price was higher than the minimum price charged by local units and in

5 In the case of Baralgan Ketone, marketed by Hoechst, the price difference between that allowed by the court and that fixed by the government was 1266%.
12 cases, the TNC price was higher than the maximum price charged by local units. In 11 cases, the maximum price charged by the TNCs exceeded the minimum price charged by the local units by more than 200%.

A general tendency for more pronounced transfer pricing in the post 1979 period, is in fact observed and the evidence of this given below. What is actually found is a lagged response in the increase in the order of transfer pricing. What is possible is that the price controls became effective much after 1979 either because the concerned companies delayed bringing prices in line with the order or succeeded in procuring a stay order from the courts and consequently the order became operative much later. Given below are 6 cases where a pronounced increase in the magnitude of transfer pricing is observed.

6 In the case of Phenyl Butazone, the price variation between the highest price charged by a TNC and the lowest charged by a local unit was 116.7% and in the case of Acetyl Salicylic Acid, this was 80%. Sulphanilamide which was subject to the DPCO 1970, had a price variation of 100% which points to the ineffectiveness of the control order in entirely eliminating the price difference.

7 In the case of Betamethasone 0.5 m.g., the price differential between the maximum price charged by the TNC and the minimum price charged by local units in 1978, was 1328.3%, in the case of Asorbic acid, 500 m.g., it was 600% and finally, in the case of Hydrochlorthiazide it was 500%.

8 It was not possible to verify if the companies whose cases have been presented here, in fact secured a stay.
The method for calculating the overinvoicing of imports for the 6 cases, is the same, as that followed in presenting estimates of overinvoicing of imports earlier. Overinvoicing of imports for both the initial and the terminal year is calculated as the invoiced value of imports less the arm's length price, dividend by the arm's length price, expressed as a percentage. Where more than one case of overinvoicing of import of a particular firm, for a particular year and for a particular product was available, the average of the degree of overinvoicing of imports was taken.

7.3 **Underinvoicing of imports**

Theoretically, there could be three causes for underinvoicing of imports by TNCs:

One, to help an affiliate which is just beginning operations to stand on its feet by lowering its costs.

Two, to provide temporary support in the event of an affiliate facing a liquidity crisis.

Three, to aid the affiliate engaged in a price war and undercut the final product price.

We came across evidence of underinvoicing of imports in several years for the data we examined. In 1982, however, more than the normal number of cases were observed. Table 8.2, below summarises the five cases of underinvoicing of imports that have been selected and the details regarding the sources etc., are given in the appendix - B. The degree of underinvoicing has been calculated as,

192
arm's length price less invoiced value
---------------------------------- X 100
arm's length price

By dumping is meant the sale of surplus goods at low price abroad with a view to maintaining home price and capturing the foreign market. In 1982 there is evidence of there having been surplus production abroad. One of the preconditions therefore of dumping is met,. However for these to be cases of generalised dumping they are too few and far between (C W 1982, p. 116).
TABLE 8.1

Degree of Transfer Pricing and the percentage Increase in it, Overinvoicing of Imports, 1978-83.

<table>
<thead>
<tr>
<th></th>
<th>Initial Year Average %</th>
<th>Terminal Year Average %</th>
<th>Increase %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analgin</td>
<td>38.6</td>
<td>89</td>
<td>130.6</td>
</tr>
<tr>
<td>(Hoechst)</td>
<td>('80)</td>
<td>('83)</td>
<td>('80 - '83)</td>
</tr>
<tr>
<td>Neomycin Sulphate</td>
<td>24.5</td>
<td>80.9</td>
<td>230.20</td>
</tr>
<tr>
<td>(Pfizer)</td>
<td>('80)</td>
<td>('83)</td>
<td>('80 - '83)</td>
</tr>
<tr>
<td>Neomycin Sulphate</td>
<td>308.3</td>
<td>5409.2</td>
<td>1654.5</td>
</tr>
<tr>
<td>(Hoechst)</td>
<td>('81)</td>
<td>('83)</td>
<td>('81 - '83)</td>
</tr>
<tr>
<td>Calcium Pantothenate</td>
<td>42.1</td>
<td>102.7</td>
<td>143.9</td>
</tr>
<tr>
<td>(Rallis)</td>
<td>('78)</td>
<td>('79)</td>
<td>('78 - '79)</td>
</tr>
<tr>
<td>Prednisolone</td>
<td>16.5</td>
<td>36.6</td>
<td>121.8</td>
</tr>
<tr>
<td>(Hoechst)</td>
<td>('79)</td>
<td>('82)</td>
<td>('79 - '82)</td>
</tr>
<tr>
<td>Pepsin</td>
<td>34.1</td>
<td>232.5</td>
<td>582.2</td>
</tr>
<tr>
<td>(Rallis)</td>
<td>('81)</td>
<td>('83)</td>
<td>('81 - '83)</td>
</tr>
</tbody>
</table>

Source: Calculated from the data presented in the appendix.
TABLE 8.2

Underinvoicing of Imports in 1982

<table>
<thead>
<tr>
<th>Product</th>
<th>TNC</th>
<th>Degree of Underinvoicing %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ephedrine</td>
<td>Warner Hindustan Ltd</td>
<td>43.4</td>
</tr>
<tr>
<td>Neomycin Sulphate</td>
<td>Searle India Ltd.</td>
<td>78.7</td>
</tr>
<tr>
<td>Prednisolone</td>
<td>Roussel Pharmaceuticals Limited</td>
<td>97.2</td>
</tr>
<tr>
<td>Pyridoxine Hydrochloride</td>
<td>Roche Products Ltd.</td>
<td>41.9</td>
</tr>
<tr>
<td>Norgestrol</td>
<td>German Remedies Ltd.</td>
<td>76.1</td>
</tr>
</tbody>
</table>

This chapter began with a study of the relation between final product prices and transfer prices. The manner in which price controls induce transfer pricing was spelt out. This was followed by a study of price controls in the drugs and pharmaceutical industry in India. This chapter also presented evidence of underinvoicing of imports.