

**Government Intervention in Commodity Trade
An Analysis of the Coffee Trade in India**

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Introduction

Government failure is the topic of discussion these days. In the Indian context government intervention in the sphere of commodity production has a long history. Production support is one of the areas where government has played a very important role. But in the case of many commodities product market failure had brought government intervention at various points of time and it had taken various forms. Market regulation is the most common form of intervention. But in the case of coffee, government intervention has turned it the sole buyer of the entire crop.¹ This has implications to the price realised by the producer and its long term movement. What has been the experience? Has the government failed?

Coffee prices are no exception to the 'violent fluctuations' to which many internationally traded commodities are subject to. One of the main aims of many producing countries over almost a century now has been to achieve some degree of price stability. At the international level commodity agreements have been entered into for this purpose. The stabilisation policies, commodity agreements and the functioning of the organisations have become subjects of

¹ Very recently a 30 per cent sale outside the government body is allowed.

intense debate.² Although there is disagreement on the benefits of stabilisation of prices, one important conclusion of Newbery and Stiglitz (1981) is that the reduction in risk to producers is a major welfare gain.

In the domestic market different organisational forms have evolved in different countries. In Brazil, the Brazilian Coffee Institute under a high ranking government minister carries out market intervention; in Colombia, the Federation of Coffee Growers is the body which buys coffee from the producers. In Uganda, Kenya, Tanzania and India government controlled marketing boards are sole legal buyers of coffee from the producers (Mwandha et al. 1985). The outcome of intervention in the marketing of commodities in Africa has been disastrous "since power-holders regularly exercised opportunism in an extreme form, including time wasting, corrupt payments and outright theft. The end result was impoverishment of growers, a decline in exports and greatly increased inequalities" (Brett, 1993, p.287; also Brett, 1970, 1988; Mporogomyi, 1988). These disastrous outcomes in tropical Africa "characterised by low levels of formal education, public debate and institutional developments" (Brett, 1993) do not allow us to generalise because the environments are different in Asia or Latin America. In this context an analysis of the performance of Coffee Board, the marketing board for coffee under the government of India, was thought relevant. This paper makes a modest attempt

² World Development 1987 (No.5) which is entirely devoted to the discussion of commodity agreements.

that direction.

How do we evaluate the market intervention by the Board? Going by the concern with the stabilisation of the price of coffee, one aspect of intervention is the degree of stability of the prices received by the producer (Section 3). A related question is the stabilisation of incomes. Does stabilisation of price ensure stabilisation of incomes or earnings? (Section 4). Recent studies focusing themselves on the producers' share of the consumers' rupee (Ramachandran and Ray, 1991; Indira, 1993), have been critical of the Board. In a situation where a varying part of the consumers' rupee flows out as tax, won't it be more appropriate to draw inferences on the performance of the Board on the basis of the share of marketing cost or the share of the cost of running the marketing department? (Section 5). One of the studies has also argued that the 'auction' system prevailing in the case of cardamom may be more efficient. Hence a comparison with cardamom is made wherever relevant. A specific issue, price discrimination for the small producer, has been taken up for comparison (Section 6). The background to and the nature of government intervention in coffee trade is provided in Section 2. Section 7 presents the conclusion.

Government Intervention

Coffee was grown systematically from about 1820 in India, and by 1860 it had come to establish itself as an industry. Area under coffee increased till about 1896 but the sharp drop in prices in

the international market - owing to the massive planting of coffee in Brazil that doubled her productive capacity - made for area shift away from coffee. Area under coffee which had reached 117 thousand hectares in 1896 dropped below 100 thousand hectares by 1900 and 47 thousand hectares by 1920. There was, however, a slow revival in the 1920s and the early 1930s. Area under the crop reached 75 thousand hectares by 1935. But the depression of the 1930s - again because of a near doubling of productive capacity in Brazil - put a stop to the area expansion. An increase in the area under the crop came about only in the late 1940s and the 1950s. By 1960 the area under the crop had reached 119 thousand hectares.

In India, coffee developed as an export crop. Till the second World War home demand was very small. During the depression years, the need to develop a domestic market was felt. Government initiative on this front came in the form of the Coffee Cess Committee in 1935. This did help in creating a small home market for coffee. The market grew over the next 15 to 20 years and by the late 1940s the entire domestic production was used up in the domestic market. In some years a ban had to be imposed on the export of coffee. The growth of domestic demand had been steady upto the late 1970s, but had slowed down considerably in the eighties.

The destination of Indian coffee was mainly Europe. During the 1920s and the 1930s, the United Kingdom and France accounted

for between 50 and 60 per cent of the exports. The 1930s had seen the share of France increasing to over 38 per cent from about 24 per cent in 1927-28. The war and the fall of France cut off this market. The producers then appealed to the government and thus began government intervention in the marketing of coffee:

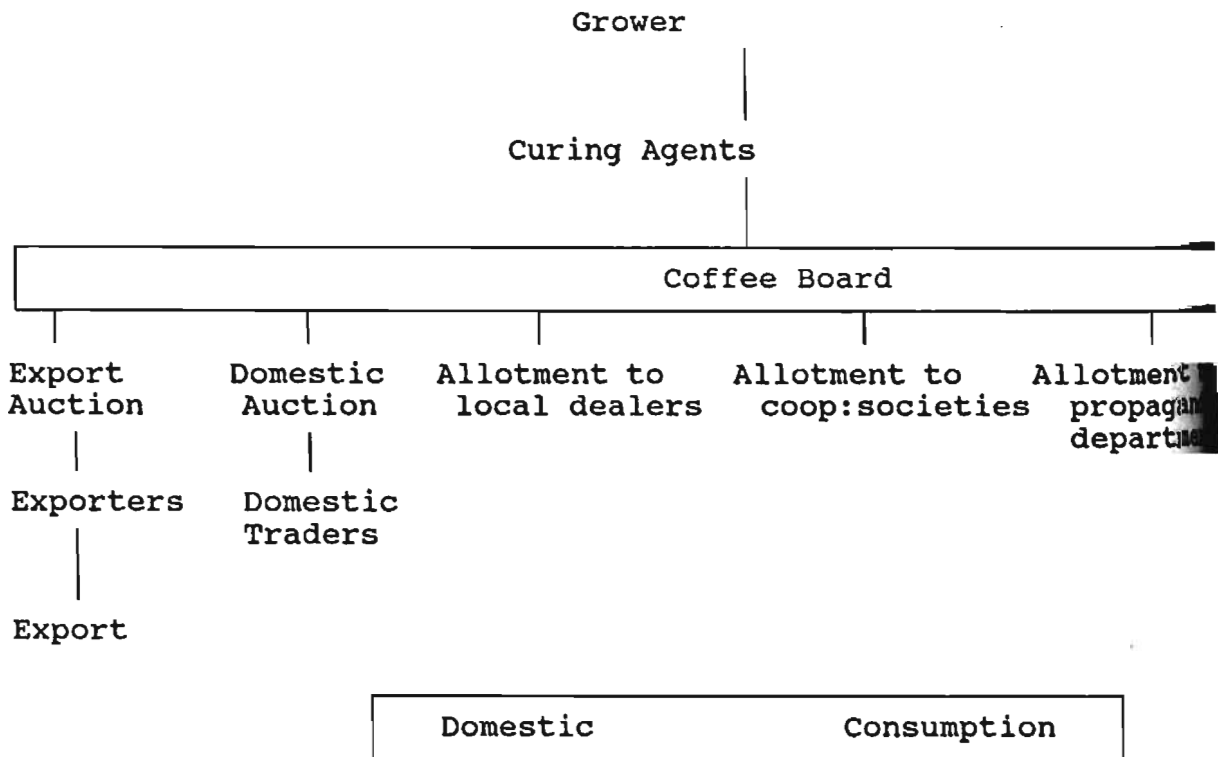
"The Indian Coffee Market Expansion Board is a product of the present war. The occupation by Germany of Holland, Belgium, Norway and France in the first half of 1940 had disastrous consequences on the Indian Coffee industry. It lost its important foreign markets and a great slump in the prices of coffee followed..."

[Annual Report 1940-41]

The government intervention was in the form of the Coffee Market Expansion Ordinance of 1940, the subsequent amendments in 1941 and the Coffee Act in 1942. The Act vested the government with control over the industry by designating the Board as the sole buyer of coffee. Although while enacting the Act it was made clear that it was to expire at the end of 12 months commencing on the first day of July, the regulations continued beyond and have been in existence for over five decades.

The marketing organisation as it has evolved may be presented as shown in the next page.

Figure 1
Present Marketing System of Coffee



As per the Coffee Act, the Board has to decide the proportion of the annual crop every registered grower is to hand over to the Pool. The proceeds from the sale of coffee received in the pool are to be distributed among the producers after deducting costs involved in the collection and disposal of coffee. The return to the grower is usually referred to as so many rupees per point. A point is a value unit of uniform applicability to all varieties and grades of coffee on a price differential scale. The sale takes into account all changes in market value to broadly reflect intergrade and varietal differences on the basis of market performance.

The coffee grower is paid an advance on delivery of coffee at the Pool against future sale proceeds. An interest is collected on this advance. The Board has evolved a method of costing and sets a "minimum release price" for the release of coffee in the internal market. The minimum release price is like the seller's reserve price made known to the auctioneer. If the market is weak the minimum is revised downwards and there has been occasions when the minimum has been fixed below the estimated cost of production.

3. Production, Export and Prices of Coffee

Production of coffee in India has grown at an average rate of 4.45 per cent per year over 1953 and 1991 (Table 1). Export, which was seriously affected during the Second World War due to disruption of trade and later in the late 1940s and early 1950s due to the non-availability of a surplus after meeting the domestic consumption, has grown at the rate of 6.78 per cent per year. Consequently, the share of exports in domestic production has increased from an average of 35 per cent in the late 1950s to over 70 per cent by the late 1980s. As against such spectacular growth of exports, the domestic consumption has grown only at around 2.57 per cent a year. Further, it has shown a tendency to stagnate in the 1980s.

Growth is only one dimension of the story. An equally important dimension is the instability. Going by Cuddy and Della Valla's (1978) index of instability, they are 18.27 per cent for

coffee production, 19.35 per cent for coffee exports and only 8.95 per cent for the domestic consumption of coffee. As is evident, although the growth rate is lower for domestic consumption, it has shown remarkable stability. But both production and exports have shown much higher instability.

Turning to the movement of prices, the New York price of Santos 4 in dollars has shown a growth rate of 4.65 per cent over 1953 and 1988. Compared to it, the price paid to the Indian grower per point has grown at a rate of 5.25 per cent over 1953 and 1991. However, the export price in rupees has grown at 8.93 per cent largely because of the steady devaluation of the rupee during the 1980s. The wholesale price of coffee in the domestic market has grown at 5.31 per cent which is closer to the rate of growth of the price received by the grower.

Table 1 : Growth and Instability Indices of Production Export and Prices of Coffee and Cardamom

Variable	Coefficient of variation(%)	<u>Linear</u>		<u>Log Linear</u>		Instability Index	Growth Rate (%)
		R ²	I _{x1}	R ²	I _{x2}		
Coffee (1953-1991)							
Production	52.06	0.80	23.08	0.88	18.27	18.27	4.45
Export	65.48	0.91	19.35	0.90	21.24	19.35	6.78
Domestic Consumption	28.82	0.90	8.95	0.87	10.41	8.95	2.57
Producer Price	61.09	0.83	25.21	0.88	21.00	21.00	5.25
Export Price	79.39	0.58	51.45	0.82	33.68	33.68	8.93
Wholesale price	63.43	0.85	24.57	0.82	26.91	24.57	5.31
Price in US dollars	72.22	0.46	53.07	0.55	48.45	48.45	4.65

Production	Cardamom (1964-1989)						
	27.19	0.28	23.07	0.25	23.55	23.07	
		1.99					
Export	50.05	-	-	-	-	50.05	-
Auction Price	68.85	0.51	48.20	0.71	37.08	37.08	7.55
Export Price	56.30	0.56	37.35	0.66	32.83	32.83	7.20

Source: Indian Coffee (various issues).

Cardamom Board, Cardamom Statistics (various issues).

Spices Board, Spices Statistics (various issues).

Note: I_x is the index of instability developed by Cuddy and Della Valla. They argue that coefficient of variation (CV) and related measures of instability are all adhoc. They use regression model and define

$$I_x = 100 \frac{SEE}{\text{Mean}} = CV \sqrt{(1-R^2) (N-1)} = CV \sqrt{(1-R^2) (N-K)}$$

It is bounded and takes values between 0 and CV. I_x is used only if the regression model is appropriate and F and the coefficients are significant. If R^2 is insignificant then CV is used as the index.

Commodity prices are known to be highly unstable and coffee is no exception to this rule. The New York price in dollars reported an instability index of 48.45 per cent and the Indian export price an index of 33.68 per cent. In contrast, the Indian wholesale price showed a much lower value at 24.57 per cent. The index for the price paid to the grower is 21 per cent.

In sum, production and export of coffee had shown higher growth rates and higher indices of instability in comparison with domestic consumption. International price in dollars and export price in rupees had also shown higher indices of instability compared to the wholesale price in the domestic market and the price paid to the

grower. Although Indian export price in rupees has shown a higher growth rate the growth rate for the wholesale price and the producer price are comparable to the price increase in the international market. Thus, domestic consumption, wholesale price and the producer price have all shown remarkable stability in the Indian coffee market.

The remarkable stability of the wholesale price and in turn the producer price has been achieved by the controlled supply of coffee in the domestic market. Supply in the domestic market has not been allowed to fluctuate with production. An example of this is the disposal pattern followed by the Board in 1983-84 and 1984-85. In 1983-84, the domestic production was 105,000 tonnes, export 71,179 tonnes and domestic supply 56,079 tonnes. In 1984-85, production was significantly higher at 195,000 tonnes and export lower at 68,896 tonnes; but domestic supply was pegged lower at 53,544 tonnes. The controlled supply was made possible by the monopoly position of the Coffee Board.

4. Market Intervention and Stabilisation of Price and Income

It was shown in the previous section that the producer price of coffee had shown a remarkable stability in comparison with its export price. But how does one use this information to evaluate the performance of the Coffee Board. The criterion used here is a comparison with the free trade situation.

India is a small producer and exporter as far as world production and export of coffee is concerned. India's share in the world production and export are below 3 per cent and India can in no way influence the world prices. Given the small producer status of India, the world prices can be taken as given. Under free trade, Indian domestic price would have equalised with the world price or the export price. This is brought out in a comparison with cardamom.

In order to estimate the relationship between the producer price and the export price an equation of the following form was run for both cardamom and coffee.

$$\text{Producer price} = a + b \text{ export price.}$$

The estimated equations in logs were the following:

Coffee (1953-1991)

$$\text{LN price} = 0.149 + 0.63 \text{ LN Exp. Price} \\ (13.85^*)$$

[0.87, 0.87, 2.03, 191.88]

R² R-2 DW F

[Dependent variable is the pool payment per point]

Cardamom (1964-1989)

$$\text{LN Auction Price} = 0.125 + 0.963 \text{ LN Exp. Price} \\ (14.65^*)$$

[0.90, 0.90, 1.55, 241.71]

comparison of the two equations showed that the auction price varied sympathetically with the export price in the case of cardamom which was not so in the case of coffee. When the coefficient b was tested for its value to be equal to one the hypothesis was rejected

in the case of coffee but could not be rejected in the case of cardamom. This is not totally unexpected as the domestic wholesale price of coffee moved on its own rather unrelated to the export price which is not the case with cardamom.

How has the wholesale price (or the price paid by the domestic wholesalers) behaved in comparison with the export price in the case of coffee? As is evident from Figure 2, the export price (in rupees) has shown cyclicity and the wholesale price has remained above the export price during the downturn and below it during the upturn. The exception is the 1980s largely because of the steady depreciation of the Indian rupee. Such a behaviour of the wholesale price considerably moderates the fluctuations in the producer price. In Figure 2, the producer price is shown below the wholesale price because the former is per point and the latter is per kilogram. In actuality, the producer price would be between the wholesale price and the export price. It may safely be argued from the figure and the indices of instability shown in Table 1 that the market intervention has considerably moderated the fluctuations in the producer price.

It is often argued that stabilisation of price need not necessarily stabilise incomes or earnings. How has the market intervention affected the incomes of coffee growers as a whole? For this purpose, a hypothetical sales value realisation (HSVP) has been compared with the actual sales value realisation (SVP). The

Fig 2: Export Price (EP), Wholesale Price (WP) and Producer Price (PP)
of Coffee, 1965-1988 (Rupees per kg.)

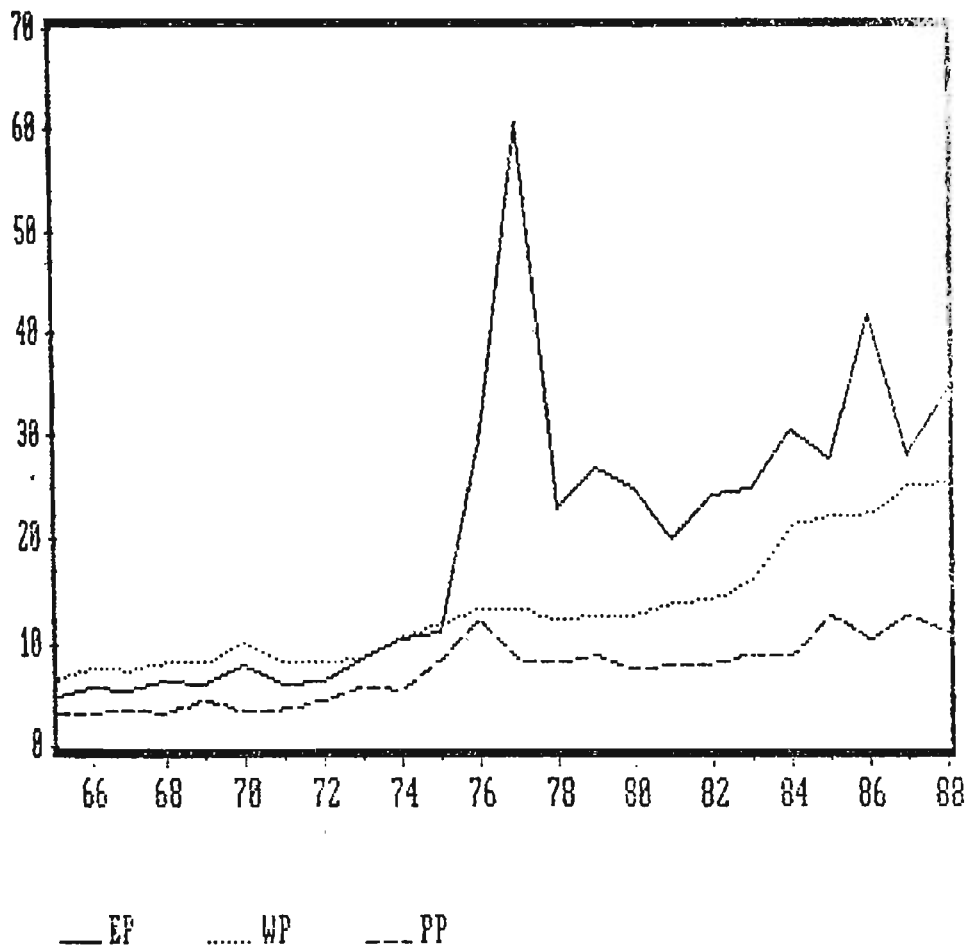


Fig 3: Export Price (EP) and Index of Hypothetical Sales Value Realisation (HSVP) of Coffee, 1965-1988 (1960 = 100)



Fig 4: Export Price (EP) and Index of Sales Value Realisation of Coffee (SVP), 1965-1988 (1960 = 100)

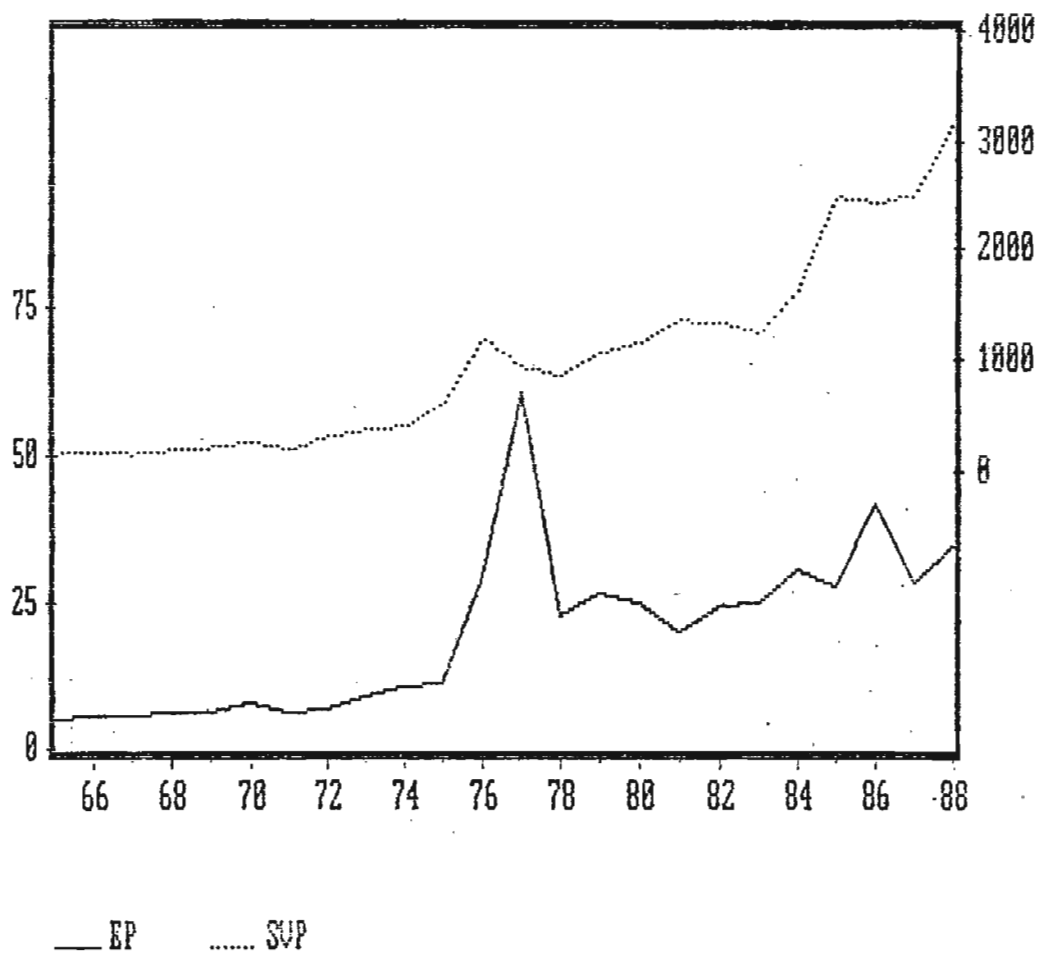
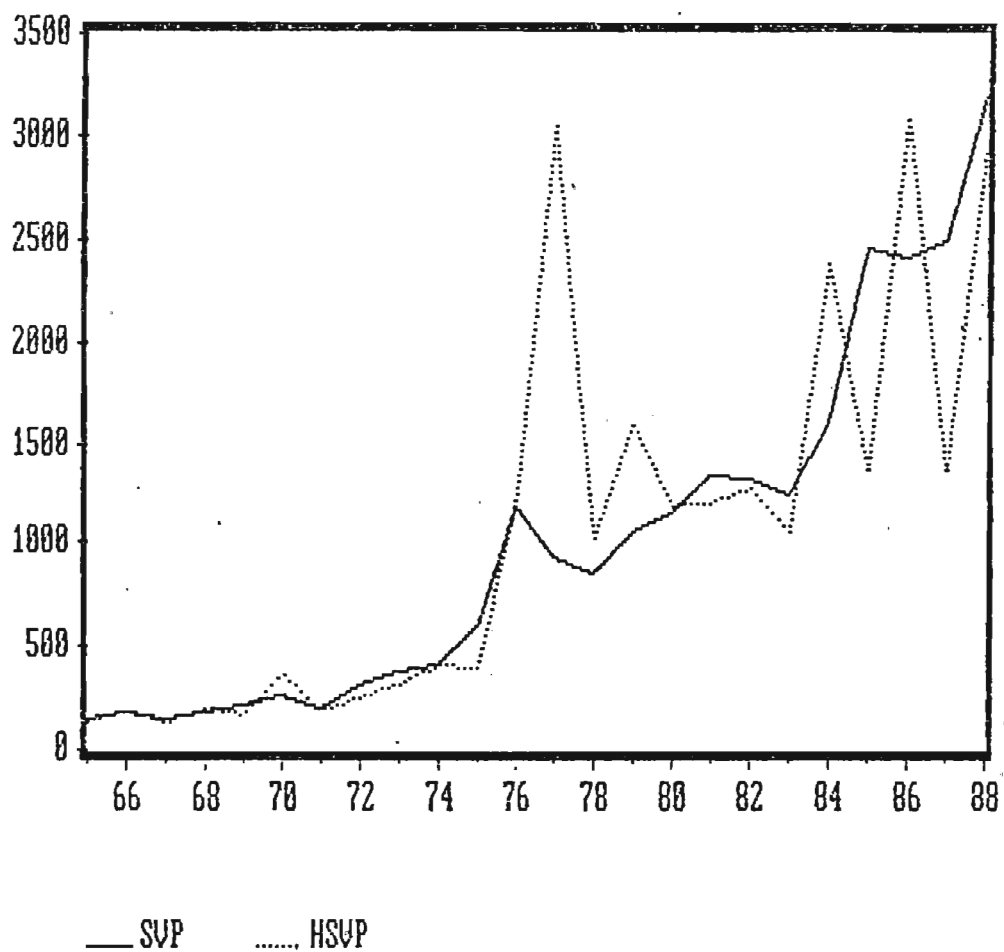


Fig 5: Indices of Actual Sales Value Realisation (SVP) and Hypothetical Sales Value Realisation (HSVP) of Coffee, 1965-1988 (1960 = 100)



hypothetical value is computed taking the price under free market situation. As the free market price is the export price, the hypothetical value realisation is taken as a product of export price and production. It is evident from Figure 3 that HSVP fluctuates with the export price. But SVP does not fluctuate with the export price (Figure 4). When SVP is superimposed on HSVP (Figure 5) it becomes evident that market intervention has brought about a remarkable stability in SVP. The same is also brought out by the instability indices. They are 15.02 per cent and 38.57 per cent for SVP and HSVP respectively.

It may be concluded that the intervention by the Coffee Board in the marketing of coffee has not only stabilised the producer price of coffee but also the total earnings of the coffee producers.

Total Marketing Cost of Coffee and the Cost of Administration

As already indicated market intervention by the Board involves cost for running the administration of marketing and transport, storage, and other changes. One of the ways of analysing such costs is by computing the producers' share in the consumers' rupee. There is one problem in computing such a ratio in the case of coffee because the difference between the sales value of coffee and the payment to the grower consists of three broad heads: (i) total marketing cost; (ii) taxes, levies and cess going to the Government; and (iii) remuneration to growers on account of

commission and curing charges. The share of taxes in the total cost of administration shows considerable variation depending on the rate of tax charged and this affects the computed margin.

As is well-known, one of the ways governments intervene in agricultural commodity markets to stabilise prices is by imposing a variable tax - high rate during high prices and lower rate during low prices. In India, this has not been done very efficiently. An excise tax both on internal sales and exports has been an absolute amount per quintal which has not varied over long periods. The central excise duty for arabic variety of coffee which was raised to 100 rupees per quintal in 1972 remained at that level for almost a decade. Similarly, the export duty which was raised to 300 rupees per quintal in 1976 remained at that level for a decade. Consequently, export duty as a percent of export price varied between 4.95 in 1977 to 15.08 in 1981. Hence, the producers' share in the consumers' price is not a very good measure to assess the efficiency of the marketing organisation. The studies by Ramachandran and Ray (1991) and Indira (1993) are subject to certain limitations.

We have computed the share of marketing cost in the total sales value. One of the components of the marketing cost is the administrative cost of the marketing department; its share in the total sales value has also been shown. As is evident from Table 1, the total marketing cost as a share of total sales value which

around 5 per cent in the 1950s and sixties increased to about 10 per cent in the early seventies. But the eighties have seen a sharp fall in it; it has come down below 5 per cent.

Table 2 : Share of Marketing Cost in the Sales Proceeds

Year	Share of Marketing Cost (per cent)	Share of the cost of Marketing Department (per cent)
1950-51	5.20	0.90
1955-56	5.24	0.66
1960-61	6.46	0.66
1965-66	4.71	0.77
1970-71	3.55	0.80
1971-72	10.47	1.34
1973-73	7.46	0.90
1973-74	8.93	0.84
1974-75	9.84	0.96
1980-81	3.28	0.53
1981-82	3.18	0.79
1982-83	3.51	0.81
1983-84	2.40	1.08
1984-85	5.16	0.91
1985-86	4.63	0.61
1986-87	4.00	0.79
1987-88	5.90	0.89
1988-89	7.15	0.77

Source: Coffee Board, Annual Report (various issues).

The share of the cost of running the marketing department in the total sales value has generally been below one per cent. No perceptible increasing trend can be observed here. The tendency is one where the share falls when the price of coffee tends to rise and the share rises when the prices of coffee tends to stagnate. The rate of growth of the cost of running the marketing department (in nominal terms) at 13 per cent over 1965 to 1985 is well below the sum of the rate of growth of production at 4.36 and the wholesale price in the domestic market at 10.60 per cent. Thus, it

may be concluded that the rather 'inflexible' marketing department has not become an undue burden on the producers.

6. Production, Export and Prices of Cardamom

Cardamom has many similarities with coffee in terms of production and export characteristics. But in the product market there are significant differences. In the case of cardamom primary sale is through the auction centres.

Cardamom like coffee is sensitive to weather conditions. The production of cardamom showed an index of instability of 23.07 per cent and the annual growth rate itself was only 1.99 per cent. (Table 1) The period considered was 1964 to 1989. The export of cardamom during the period did not show any trend. The average was 1619 tonnes and the coefficient of variation was 50.05 per cent. The export price of cardamom in rupees had increased at the rate of 7.55 per cent and the average auction price at the rate of 7.20 per cent. The instability index was 37.08 per cent for the auction price and 32.83 per cent for the export price. It is instructive to note here that the export price instability for coffee and cardamom were more or less comparable but the average auction price of cardamom had an instability index of 37.08 per cent which is almost double the instability index of the producer price of coffee at 21.00 per cent.

In the case of coffee the producer price does not show any

systematic variation across lot sizes; for comparable varieties and grades the small growers and the large obtain the same price.³ In the case of cardamom the price realised for lots of different sizes are different. We quote from an earlier study of ours:

"As regards the price obtained in the auctions by the different lots, the study by K.J. Joseph (1985) shows that there existed a positive relationship between lot size and average price. The average price obtained tends to increase with the increasing lot size. The price obtained by the largest lot is 12 to 87 per cent higher than that obtained by the smallest lot, depending upon the season and year of sale" (Nair et.al., 1989, p. 30).

To complete the picture, the relationship between price and quality also needs to be estimated. The estimated relationship between price, quality (quantified as weight per volume measure) and quantity of the lots showed that price was determined both by the quality of the product and the lot size. What is of significance is the importance of the two explanatory variables. We quote from Joseph (1985):

"The partial correlation coefficients show that, while 68 per cent of the price variation is explained in terms of quality in the peak season, only 32 per cent of the price variation is due to quality in the slack season. On the other hand, in the peak season quantity variation accounts for only 6 per cent of the price variation, whereas it increases to 42 per cent in the slack season".

Thus, lot size explains a significant part of the variation in prices obtained at the auctions. The price discrimination against lots of smaller sizes is sharper in years of higher production.

³ The price obtained by the small growers are different from that obtained by the large growers.

In the case of coffee, the modalities of sale does not exclude any size class of producers. But in the case of cardamom, small producers are practically excluded from the auction. Joseph's study showed that the share of small lots (lot size below 20 kg.) in five years from 1979-80 to 1983-84 was less than 6 per cent, except in 1979-80. Data collected from the producers also showed a similar pattern. We quote the conclusions of an earlier study:

"On the whole, it is seen that planters owning less than 7.5 acres do not make use of the auction centres. Further, most of the sales from the lower size classes are to local traders, part of which is in the form of wet sales. And the price obtained on wet sales is less than 65 per cent of the price obtained at the auction centre". (Nair et al., op.cit. p. 89).

On the whole, the auction system in cardamom excludes small producers and the price obtained by the smaller producers is also significantly lower than that obtained by the larger producers. Such discrimination is not to be found in the market of coffee.

7. Conclusion

It may be seen that the producer price of coffee has a remarkable stability unlike the auction price of cardamom both of which depict comparable production and export characteristics. Producer price stabilisation in coffee has been achieved by total control exercised by the Coffee Board on the stocks and release in the domestic market. Stabilisation of price has brought about remarkable stability in incomes. Coffee also has

distinction of uniform producer price realisation- but for the differences in grade and variety - which is unlike cardamom where there is a systematic discrimination against small producers. The total marketing cost incurred by the Coffee Board or the administration cost of the marketing department has also not shown any significant increase over the last 40 years.

The stabilisation of the producer price and income of coffee and the consequent reduction in risk to producer - Newbery and Stiglitz's conclusion - has had its impact on investments in production. As already seen production of coffee has shown a steady increase over the years which is accounted for by area expansion and significant gains in yield. In contrast, production of cardamom has shown very low growth rate and insignificant gains in yield.

The Coffee Board is also often criticised for the split payments it makes to the growers. Here it is pertinent to note that

" The quality of coffee is but imperfectly related to the observable attributes of the coffee bean, i.e.its colour; only when the bean is processed and tested "in the cup" can its quality fully be determined"(Bates,1981,p.76).

In such a situation one of the market like solutions is split payments and it has nothing much to do with the marketing organisation pebe.

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