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A STUDY OF COST OF PRODUCTION OF COFFEE IN INDIA

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The objectives of this paper are : (1) to review briefly the studies on cost of production of coffee in India, and (2) to study the cost of production of coffee by the survey method, covering estates of almost all size-groups.

I

PREVIOUS COST STUDIES ON COFFEE

Cost studies on coffee have an important bearing on taxation, minimum wage and price policies and provide a variety of results of practical value for improving the efficiency of estate management. "The basic release price in the sales of coffee made by the Coffee Board primarily depends on the cost of production of coffee. Changes in the cost of production of coffee, therefore, influence to a large extent the price of coffee in our country."[1]

Attempts have been made from time to time to study the cost of production of coffee in India. These were done by individuals, Plantation Associations, Government Accountants, Officers of the Coffee Board, Inquiry Commissions, etc. It is reported that "The first enquiry in the cost of production of Arabica coffee was carried out in 1945 by Mr. H. L. Cooke. A further enquiry was carried out by Shri O. N. Anand during the year 1947-48. Since then, the Coffee Board has also collected figures for cost of production of selected Arabica estates every year in order to determine the basic price for Arabica Coffee."[2] However, the coverage in these enquiries has been rather limited.

The earliest information regarding a rough estimate of cost of replanting or new planting is available from the report on Coffee of the Plantation Inquiry Commission (1956). According to the Commission's findings, the cost of new planting and replanting and tending of coffee for five years showed considerable variation from State to State, virgin to reclaimed land and between the varieties. And within a variety and type of the land and year, the cost was further varying.[3] The estimated cost varied from Rs. 1,000 to 2,000 per acre, and the actual costs from Rs. 500 to 2,000 per acre.

The very first year of planting requires about 50 per cent of the total cost for new planting/replanting for five years. For, the bulk of the field operations and planting of new seedlings take place in the first year. The following four years are of maintenance and care, and the remaining 50 per cent of the total cost is almost evenly spread out over these four years. A recent cost survey by the Coffee Board corroborates this.[4]

The first detailed and authoritative study regarding the cost of production of mature, *i.e.*, bearing coffee plants was done by K. Nagaswamy, Cost Accoun-

* The author is grateful to the referee for editing the paper.

1. Report of the Plantation Inquiry Commission, Part II—Coffee, Government of India, 1956, p. 56.
2. *ibid., loc. cit.*
3. See the Report of the Plantation Inquiry Commission, *op. cit*, Annexure VIII, pp. 33-39.
4. (*a*) For an estimated break-up of the very first year's costs, see Indian Coffee Board: *Indian Coffee*, Vol. XXXI, No. 1, January, 1967, p. 31. The estimated cost per acre is Rs. 990.
(*b*) For operationwise and yearwise break-up of estimated costs of new planting and replanting for the first five years, see Agricultural Refinance Corporation: Financial Assistance for Development of Coffee Plantations, Bombay, 1967, p. 20.

tant Officer, Government of India, in 1953.[5] This study, however, covered only the corporate and/or big estates and not the small and medium ones.[6] According to this study, the cost per acre of production was about Rs. 425 for Arabica and only Rs. 80 for Robusta. The next elaborate study with a large coverage was conducted by the Plantation Inquiry Commission, set up by the Government of India in 1956. According to that study, on an average, the cost of production was Rs. 720 per acre of Arabica coffee, Rs. 550 per acre of Robusta coffee and Rs. 700 per acre of 'mixed' coffee estates. As these figures were also for the same period, *i.e.*, 1953, the glaring disparity between the findings of these two sources become evident. And the Commission specially mentioned the limitations of their study observing that "In view of the lack of dependability of these figures, we have not tried to draw any definite conclusions from this analysis.[7]"

The next important study to be published regarding the cost of production of Arabica coffee in India was in 1958 by the Indian Coffee Board, Bangalore.[8] It was done for only Arabica coffee and for the corporate estates, and it suffered, like all other studies, from the general drawbacks mentioned earlier. In that study, the cost of production was calculated for the period 1949-50 to 1956-57. What was new about the study was that it took into account the replanting allowance[9] and the interest on working capital and return on the value of the estate, and included these items in the cost of production. The cost of production thus worked out to be about Rs. 836 per acre, if an average yield of 5 cwt.* per acre was considered. It was shown in the study that the costs as a whole increased owing to the increased wage rates, higher prices for fertilizers and other estate requisites, etc., as also the larger expenditure on salaries, labour welfare and upkeep of buildings. However, the increase in the average yields per acre helped to hold in check the rise in unit costs.

The next study made regarding the cost of production of coffee in India was by the Central Wage Board for coffee plantation industry, published in 1965.[10] However, the cost of production figures estimated by the Board were only up to the year 1960. It covered the 11-year period, from 1950 to 1960. The limitations of the financial data vitiated this study too, and only the corporate sector was taken into consideration. To quote the Report : "The Board is aware of the limitations of this data and realises difficulties in the general applicability of the conclusions that can be drawn from an analysis of such data."[11] Anyway, the cost of production thus worked out was about Rs. 1,300 per acre.

In yet another recent study, Debnath and Sarkar have given elaborate indices of the estimated cost of production of Arabica and Robusta coffee, as computed

5. Report of the Plantation Inquiry Commission, *op. cit.*, Appendix II.

6. A "small" estate is one which has less than 25 acres of planted area, a 'medium' above 25 but less than 100 acres, and a 'large' more than 100 acres.

7. Report of the Plantation Inquiry Commission, *op. cit.*, p. 71.

8. M. C. Satyanarayana, "Cost of Production of Arabica Coffee in India," *Indian Coffee*, Vol. XXII, No. 4, April, 1958, pp. 131-136.

9. Coffee plants take about 6 years to yield and the yield begins to decline when trees are more than 40 years old. A good estate, therefore, should always have 15 per cent ($2 \cdot 5 \times 6$) area under immature plants.

* 1 cwt = 50 kgs.

10. Report of the Central Wage Board for Coffee Plantation Industry, Government of India, 1965.

11. *ibid*, p. 38.

from the Coffee Board's data received through private correspondence.[12] In one of the very latest estimates available, the cost of *new planting* for the first five years is estimated to be Rs. 2,560 per acre in 1965-66 and Rs. 3,000 per acre in 1969-70, a flat rate annual increase in the cost by about 20 per cent. The same is estimated to be Rs. 2,060 in 1965-66 and Rs. 2,500 per acre in 1969-70 for *replanting*—about 25 per cent annual increase in the cost.[13]

Thus, the aforesaid discussion shows that the studies so far made on the cost of production of coffee in India are generally subject to several limitations. To be precise, (*a*) most of these studies were done on corporate or company estates which cover usually more than a few hundred acres; (*b*) the sample selection of these studies was always purposive or selective, of only those estates the management of which was willing to provide data; (*c*) even when non-corporate estates were studied, they were invariably of big growers—because the small and the medium growers were either not properly maintaining the accounts (which is generally true in the case of all small growers) or not willing to provide accounts; and (*d*) there were no proper checks and supervision regarding the data provided—every study having been done on the basis of whatever data the planters provided through the liaison officers. All this has prompted this author to the second objective (and second part) of this paper, *viz.*, to study the cost of production of coffee by the survey method, covering estates of almost all size-groups.

II

A COST STUDY ON THE BASIS OF SURVEY METHOD

The study was undertaken in Aldur (Chickmagalur district, Mysore State), one of the main coffee-growing centres in the largest coffee-growing district, the sample thus representing one of the typical coffee-growing areas in India. The "universe" of the study covered an area of about 15,000 acres of coffee. The sample area covered 4,169 acres (of 76 planters/estates). The variety represented was mostly Arabica (95 per cent of the planted area). It was a cross-sectional study, the reference period being the year 1964-65 (April to March).

The Data and Methodology

The data were collected through a structured questionnaire by interviewing the planters,[14] and the methodology adopted in respect of sample selection was purposive, since response from any and every planter was not coming forth. Nevertheless, it was sought to cover almost all planters of different acreage in the region under the investigation. Of course, planters having 10 acres of coffee or less were not contacted, as the response from them was poor and they had hardly maintained any records to make use of.

Limitations of the Cost Study on Coffee

While claiming that the present study is more elaborate than the foregoing ones, it is clearly acknowledged that a cost study on coffee is always fraught with several limitations. Some of these are mentioned below:

12. N. Debnath and G. K. Sarkar, "The Economic Structure of Coffee Cultivation in India," *Economic and Political Weekly*, Vol. II, No. 49, December 16, 1967, pp. 2165-2168.
13. Agricultural Refinance Corporation: *op. cit.*, p. 20.
14. This study was undertaken by the Gokhale Institute of Politics and Economics, Poona as a part of their 'Crop Study Series.' The investigation was carried out by the author himself during April to December, 1965. The author is grateful to Prof. V.M. Dandekar who kindly permitted to make use of the data.

1. Coffee is often inter-cropped with orange, banana, pepper, etc. And some costs such as transport, watch and ward, management, etc., are common for coffee, orange, etc., and it is difficult to apportion these costs accurately to each crop.
2. When Arabica and Robusta coffee are grown as a mixture, it is difficult to estimate the cost of a particular variety.
3. Between the estates, the methods of maintaining accounts and records also vary much, causing difficulty in handling cost data.
4. In quite a number of cases, particularly in the case of small estates, no proper accounts and records are maintained, and even if available are scanty and/or mixed up with other accounts.
5. Some others who maintain accounts do not allow access to these, thinking that it would work against them in tax matters.
6. The yield of coffee in an estate is generally subject to a crop cycle of bumper crops followed by poor and medium crops.

Sample Character

The sample planters are broadly divided into three groups on the basis of (*i*) land ownership, (*ii*) age-group of their trees and (*iii*) other important/relevant characteristics. All these characteristics are studied under five groups of planters/estates, the planters/estates being classified on the basis of area under coffee. Group I planters owned coffee estates of an area more than 200 acres each; group II, 100 to 200 acres each; group III, 50 to 100 acres each; group IV, 25 to 50 acres each; and group V, 10 to 25 acres each. This group classification is maintained throughout the analysis.

Land Ownership

The land ownership pattern and the number of sample planters falling under each group is shown in Table I. The table indicates that coffee area per planter is decreasing from group I to group V since the groups themselves are chosen on the basis of coffee area. There is a direct relationship between coffee area owned and the area under the mixture of orange and coffee. However, paddy area per estate is the highest among the planters under group III.

TABLE I—LAND OWNERSHIP PATTERN OF THE SAMPLE PLANTERS

(*Area in acres per estate*)

Items	Group of estates					
	I	II	III	IV	V	Overall
1. Number of estates ..	4	7	13	18	34	76
2. Average (total) coffee area	273·29	131·18	76·12	36·64	14·94	54·82
3. Arabica area	247·04	131·18	76·12	36·14	14·82	53·27
4. Arabica area, bearing ..	234·54	125·91	70·93	33·59	13·60	50·09
5. Arabica area, non-bearing	12·50	5·27	5·19	2·56	1·22	3·18
6. Robusta area, bearing ..	26·25	—	—	0·50	0·12	1·55
7. Paddy area	3·75	3·57	7·96	1·53	1·57	2·95
8. Total coffee and paddy area (2 + 7)	277·04	134·75	84·08	38·17	16·51	57·77
9. Coffee and orange, mixed area	48·75	32·33	22·92	11·83	5·06	14·52

Age of Plants

The age of the coffee plants differed between the size-groups of the sample estates. This is clear from Table II. The percentage of older plants (say 25 years and above) is larger in estates of larger size (groups I and II) than in the estates of smaller size (groups III, IV and V). This further indicates that the estates of smaller size are of more recent origin. Very young and old plants usually yield less than the plants of medium age and the age structure (see footnote 9) of plants has an important bearing on yield and replanting schedule.

TABLE II—PERCENTAGE DISTRIBUTION OF THE AGE-GROUP OF PLANTS IN THE SAMPLE ESTATES

Age of the plants (years)	Percentage distribution of area under each group of estates					
	I	II	III	IV	V	Overall
Upto 3	4·57	3·96	6·82	6·99	8·16	5·81
3—5	10·06	3·64	11·11	19·10	16·73	11·12
5—10	12·35	10·40	16·27	20·93	30·10	16·40
10—15	17·38	13·40	16·97	12·69	13·25	15·22
15—25	22·41	30·34	19·99	11·05	10·43	20·44
25—35	24·86	22·02	8·53	8·81	8·82	15·93
35—45	7·32	2·15	19·69	6·79	9·03	9·25
45 and above	1·05	14·09	0·62	13·64	3·48	5·83
Total	100·0	100·0	100·0	100·0	100·0	100·0

Other Relevant Sample Characteristics

The other relevant aspects of the sample character are now considered. Table III includes these.

TABLE III—SOME OTHER RELEVANT CHARACTERISTICS OF THE SAMPLE ESTATES

Items	Group of estates					
	I	II	III	IV	V	Overall
1. Elevation of the estates (feet)	3,725	3,788	3,831	3,464	3,671	3,661
2. Blossom showers received (inches)	1·50	1·51	1·31	1·41	1·37	1·39
3. Total expenditure on paddy (Rs./acre)	300·0	250·0	244·42	227·25	192·11	234·24
4. Net income from paddy (Rs./acre)	300·0	53·60	32·98	76·72	153·36	87·11
5. Total expenditure on orange (Rs./acre)	158·97	126·30	165·84	150·21	134·45	148·64
6. Net income from orange (Rs./acre)	302·56	91·41	48·88	60·08	26·02	101·00

As seen from the table, the sample estates are situated almost at the same elevation. And as regards blossom showers, an average of 1.4″ may be considered satisfactory.

The costs of cultivation between the groups for paddy (a separate crop) and orange (a mixed crop with coffee) do not differ considerably. However, the net income per acre of these crops varies sizably between the groups. It is rather difficult to explain such a divergence. However, expenditure/income of paddy/orange crops are considered relevant because: (*i*) this would help have a total picture of income of a planter, and (*ii*) some expenses such as on management, watch and ward, transport, etc., are in most cases common for coffee, orange and paddy.[15]

Cost of Production of Coffee

The cost of production of coffee has been divided into three main categories: (*i*) costs of cultivation, (*ii*) costs of preparing the produce for the market and (*iii*) other costs. The itemwise break-up of these three main cost categories are given in Tables IV, V and VI respectively.

Cost of Cultivation

The cost of cultivation has been further divided into three categories: (*a*) labour costs, (*b*) material costs, and (*c*) transport costs.

TABLE IV—COSTS OF CULTIVATION OF COFFEE

(*Rs. per acre*)

Items	Group of estates					
	I	II	III	IV	V	Total
(*a*) Labour costs						
1. Pruning	66·0	57·99	57·87	54·05	49·82	58·46
2. Trenching/mulching ..	100·00	100·00	100·00	100·00	100·00	100·00
3. Weeding	32·83	33·16	35·75	35·84	29·79	33·70
4. Spraying	46·20	39·36	42·45	38·41	30·12	40·61
5. Gamaxin swabbing ..	25·00	20·15	20·25	17·03	8·51	19·53
6. Applying fertilizers ..	12·50	11·63	13·41	12·30	10·31	12·23
7. Scuffling	25·00	25·00	25·00	25·00	25·00	25·00
8. Others*	26·85	26·85	26·85	26·85	26·85	26·85
Total (*a*)	334·38	314·14	321·58	309·48	280·40	316·38
	(63·0)	(64·6)	(60·3)	(62·7)	(62·3)	(62·5)
(*b*) Material costs						
1. Fertilizers	112·50	91·57	130·01	113·82	106·26	111·49
2. Spray materials ..	58·13	56·52	59·47	50·55	47·97	55·66
3. Gamaxin	16·00	13·78	12·47	9·35	5·48	12·34
Total (*b*)	186·63	161·87	201·95	173·72	159·71	179·49
	(35·1)	(33·3)	(37·9)	(35·2)	(35·5)	(35·5)
(*c*) Transport cost of input materials ..	10·00	10·00	10·00	10·00	10·00	10·00
Total (*a*)+(*b*)+(*c*) ..	531·01	486·01	533·53	493·20	450·11	505·87

*Costs such as shade lopping, borer marking/uprooting, gap-filling, fence-repairing, boundary cleaning, nursery, etc.

Note: Figures in brackets indicate percentages to total.

15. Of course, we have attempted to apportion these costs to the various crops under different norms. For example, management cost was apportioned on the basis of income from each crop, watch and ward cost on the basis of area, transport cost on the basis of quantity and distance transported, etc.

Among the cultural operations, the number of prunings, weedings, sprayings, gamaxin swabbings and fertilizer applications during the year varied among the sample planters. Trenching/mulching operation in some cases was understood to have been done once in two or three years. However, the sample planters maintained that it was done every year. To this extent the cost of cultivation will be over-estimated. On items such as surface stirring, 'others' and transport costs, the planters could not give (or apportion out) fairly reliable figures. Therefore, on the basis of data obtained from those few who gave the cost figures in detail, an average cost on these items has been calculated and apportioned to each group of estates.

It is interesting to note from Table IV that the size of the estate has not much to do with the cost of cultivation of coffee except perhaps with the costs of spraying and gamaxin application (material+labour). Further, it is rather difficult to explain why group II (100 to 200 acres) has used the lowest amount of fertilizer and group III (50 to 100 acres) the highest. A probable reason could be the kinds of fertilizers used, the value of which (for the same quantity and/or even for the same nutrient contents used) differed from one kind of fertilizer to another. On the whole, the cost of cultivation was about Rs. 500 per acre.

Another important feature that should be observed from Table IV is the high percentage of labour and material costs in the total cost of cultivation—62.5 and 35.5 respectively.

Cost of Preparing Coffee for the Market

Table V indicates that there is considerable difference in the itemwise costs of preparing the produce for the market between the size-groups. However, barring the costs of 'gleaning' and 'watch and ward,' all other cost items are related to the yield per acre.

TABLE V—COST OF PREPARING COFFEE FOR THE MARKET

(Rs. per acre)

Items	Group of estates					
	I	II	III	IV	V	Overall
(*a*) Labour costs						
1. Picking	60·72	32·15	48·92	34·70	38·13	44·76
2. Gleaning	6·00	4·74	5·57	5·70	6·00	5·57
3. Pulping/preparing cherry	5·40	2·85	3·78	2·07	1·35	3·45
4. Watch and ward ..	8·00	8·00	8·00	8·00	8·00	8·00
Total (*a*)	80·12	47·74	66·27	50·47	53·48	61·78
	(59·5)	(61·7)	(60·0)	(61·2)	(60·7)	(60·3)
(*b*) Other costs						
1. Transport	15·09	8·20	12·26	8·93	9·78	11·28
2. Curing charges ..	37·72	20·49	30·64	22·52	24·43	28·19
3. Miscellaneous* ..	1·80	0·95	1·26	0·69	0·45	1·15
Total (*b*)	54·61	29·64	44·16	31·94	34·66	40·62
	(40·5)	(38·3)	(40·0)	(38·8)	(39·3)	(39·7)
Total (*a*)+(*b*)	134·73	77·38	110·43	82·41	88·14	102·40
Yield/acre (kg.)	337·20	204·91	306·33	223·14	244·30	281·85

* Electricity, gunny bags, etc.

Note : Figures in brackets indicate percentages to total.

The labour-intensive nature of the operations involved in preparing the produce for the market too (about 60 per cent of the total) is clearly discernible. The percentage would be about 84 if the curing charge is excluded from the total cost. On the whole, the cost of preparing the produce for the market is about Rs. 100 per acre, which is about one-fifth of the cost of cultivation.

Other Production Costs

Under this title all other costs of production of coffee, direct and indirect, are included. These are given in Table VI. Some of these costs are explained below.

TABLE VI—OTHER DIRECT AND INDIRECT COSTS OF PRODUCTION OF COFFEE

(*Rs. per acre*)

Items	Group of estates					
	I	II	III	IV	V	Overall
1. Managers'/writers' salary..	31·83	55·00	16·43	34·47	14·53	31·59
2. Miscellaneous	38·42	36·44	35·33	35·99	26·17	35·40
3. Depreciation ..	61·31	61·22	67·40	51·01	49·60	59·68
4. Amortisation	62·50	62·50	62·50	62·50	62·50	62·50
5. Return on working capital (out of pocket costs) ..	58·88	52·37	55·66	51·69	46·32	54·02
6. Replanting allowance ..	75·44	40·98	61·27	44·63	48·86	56·35
Total ..	328·38	308·51	298·59	280·29	247·98	299·54

Miscellaneous: These costs include land revenue, other employees' salary, medical bills, hospital charges, 'cambals,' postage and stationery, maintenance of buildings, labour lines, pumps and sprayers, vehicles, etc.

Depreciation: The depreciated items include assets such as estate houses, cattle sheds in the estate, stores, labour quarters, wells and tanks, pulping houses, pulping machines, pumps, sprayers, sickles, spades, crow-bars, axes, bicycles, motor cycles, tractors, jeeps, cars, etc.[16]

In all cases, the straight-line method of depreciation was followed taking into account the reported purchase price of each asset and expected years of its service.

Amortisation: The amount of amortisation is calculated after capitalising the first five years' new planting (replanting) expenditure as an asset. This value

16. In the case of jeeps and cars, care was taken to depreciate only one of the vehicles when a planter owned both of them or more than one of each of them; or when it was considered a vehicle was hardly used for estate purposes, no depreciation was taken into account. In the case of a tractor it was rather difficult to apportion the depreciable amount for coffee, paddy or orange cultivations, or for those days when it was hired out. However, the planters' view regarding the percentage of a tractor's service used for coffee cultivation during the year was taken into account in apportioning the depreciable amount for coffee cultivation.

has been assumed (in 1964-65) to be equivalent to Rs. 2,500 per acre. The life of the assets (coffee plants) is further assumed to be 40 years. And, the straight-line method of amortisation is followed.[17]

Return on working capital: An 8 per cent return on working capital has been considered. The working capital required per acre is based on the findings of this study (Table VII). Out of pocket costs are considered as working capital.

Replanting allowance: Replanting allowance is considered at the rate of Rs. 10 per 50 kilograms of yield. The actual yield figures for the year 1964-65 have been taken into account in calculating this amount.

Summary of Costs of Production of Coffee

The three kinds of costs of production of coffee have been summarised in Table VII. The percentages of total labour costs, total material costs, out of pocket costs in the total cost of production of coffee are also given in this table to provide an overall distribution of costs.

TABLE VII—SUMMARY OF COSTS OF PRODUCTION OF COFFEE

(*Rs. per acre*)

Items	Group of estates					
	I	II	III	IV	V	Overall
1. Costs of cultivation ..	531·01 (53·42)	486·01 (55·74)	533·53 (56·61)	493·20 (57·62)	450·11 (57·24)	505·87 (55·72)
2. Costs of preparing the produce for the market ..	134·73 (13·55)	77·38 (8·88)	110·43 (11·71)	82·41 (9·63)	88·14 (11·22)	102·40 (11·28)
3. Other costs	328·38 (33·03)	308·51 (35·38)	298·59 (31·68)	280·29 (32·75)	247·98 31·54	299·54 (33.00)
4. Total cost of production ..	994·12	871·90	942·55	855·90	786·23	907·81
5. Total labour costs ..	414·50 (41·70)	361·88 (41.50)	387·85 (41.14)	359·95 (42.06)	333·88 (42·47)	378·16 (41·66)
6. Total material costs ..	186·63 (18·77)	161·87 (18·57)	201·95 (21·43)	173·72 (20·30)	159·71 (20·31)	179·49 (19·77)
7. Out of pocket costs or cash costs	735·99 (74·03)	654·83 (75·10)	695·72 (73·81)	646·07 (75·48)	578·95 (73·64)	675·26 (74·38)

Note: Figures in brackets indicate percentages to total in row (4)

17. A point to be noted here is that, by capitalising the first five years' expenditure of new planting and amortising it over the years of the life of the asset, the author is not following the accounting procedure of the Coffee Board, which considers *inter alia* 10 per cent value of the capital (say Rs. 2,500) as a minimum pre-tax profit a plantation should earn. According to the Board's method, the amount would work out to Rs. 250 per acre; whereas by capitalising and then amortising, the amount works out to only Rs. 62·5 per acre. However, this is a debatable issue open for discussion.

As can be seen from Table VII, it is only the cost of preparing the produce for the market which differed considerably between the size-groups of the estates. It ranged from a minimum of Rs. 77.38 per acre in group II to a maximum of Rs. 134.73 per acre in group I. (The percentage of this cost to the total cost between these two groups varied from 8.88 to 13.55.) The variation of this cost between the groups is, however, in accordance with the yield per acre obtained during the year (see Table V and Table VIII). On an average, the total cost of production of coffee per acre was Rs. 900 in which cultivational costs accounted for about 55 per cent, 'other costs' for about 35 per cent and the costs of preparing the produce for the market for about 10 per cent. Inputwise, labour costs accounted for about 40 per cent of the total cost, and material costs for about 20 per cent. Out of pocket costs (cash costs) in the estimated total cost was about 75 per cent.

III

ECONOMICS OF COFFEE PRODUCTION

In the final analysis what really matters is the economics involved in the situation and Table VIII throws light on this sphere. As seen from the table, estates of all the sample size-groups excepting group II (100 to 200 acres) have obtained profit during the year 1964-65. The pre-tax profit per acre ranged from Rs. 81.31 in group IV to Rs. 590.12 in group I, the average profit to the sample as a whole being Rs. 275.94 per acre. A pre-tax profit of about Rs. 275 per acre cannot be considered as "good" if the element of risk involved in a business like coffee-

TABLE VIII—ECONOMICS OF COFFEE PRODUCTION OF SAMPLE PLANTERS

(*Rs. per acre*)

Items	Group of estates					
	I	II	III	IV	V	Overall
1. Average yield/acre (cured coffee in kgs.)	377·20	204·91	306·33	223·14	244·30	281·85
2. Value of the produce* ..	1,584·24	860·63	1,286·59	937·21	1,026·07	1,183·75
3. Total cost of production ..	994·12	871·90	942·55	855·90	786·23	907·81
4. Net profit/(Loss) ..	590·12	(−11·27)	344·04	81·31	239·24	275·94
5. Out of pocket expenditure	735·99	654·83	695·72	646·07	578·95	675·26
6. Difference between (2) and (5)	848·25	205·80	590·87	291·14	447·12	508·49
7. Output-input coefficients: (*a*) (2)/(3)	1·60	0·99	1·37	1·09	1·31	1·30
(*b*) (2)/(5)	2·15	1·31	1·85	1·45	1·77	1·75

* Calculated on the basis of Coffee Board's average receipts of price for the crop of the year 1964-65.

growing is taken into account. However, if the year 1964-65 is considered as below normal (since total coffee production in the country fell from 69,300 tonnes in 1963-64 to 61,015 tonnes in 1964-65), the profit obtained per acre should be considered as being quite substantial.[18]

Irrespective of whether we can consider the year 1964-65 as a normal year or not, or whether a pre-tax profit of Rs. 275 per acre could be considered as quite substantial or not, we can study the productivity of different size-groups of the sample estates. This is clear from the last two rows of Table VIII. According to output-input coefficients, and taking into account the total cost of production, for every 100 paise input the output was only 99 paise in the case of group II estates. It is admittedly a sad state of affairs if it continues. The productivity was the highest in the estates of size of 200 acres and above (group I), the descending order of the size-group of estates on the basis of productivity being 50 to 100 acres (group III), 10 to 25 acres (group V), 25 to 50 acres (group IV) and 100 to 200 acres (group II). If these output-input coefficients are of any indication, then one may perhaps say that it is more economical to own an estate of the size of either 200 acres and above, between 50 and 100 acres or between 10 and 25 acres than to own an estate of the size of 100 to 200 acres or 25 to 50 acres.[19]

SUMMARY AND CONCLUSIONS

Coffee as a plantation and foreign exchange-earning crop is well-known in India. The need for and the importance of the study of cost of production of coffee cannot be over-emphasized. Several cost studies on coffee have been made in India. But these studies are subject to several limitations. This study attempts to overcome some of the limitations and to fill the gap by a study covering all size-groups of estates. The objectives of this study have been: (*i*) to review the studies on cost of production of coffee in India; and (*ii*) to study the cost of production of coffee by survey method, covering estates of almost all size-groups.

The cost of *new planting*, as available from the Report of the Plantation Inquiry Commission (1956), varied from about Rs. 1,000 to 2,000 per acre for the first five years. In yet another recent study (1967) the same is estimated to be varying from Rs. 2,500 per acre in 1965-66 to Rs. 3,000 in 1969-70. The estimated *replanting* cost shown in the study is Rs. 2,000 per acre for the first five years in 1965-66 and Rs. 2,500 in 1969-70.

As per the studies available, the cost of production of *matured/bearing plants* per acre varied anything between Rs. 400 and Rs. 700 in 1953. In 1958 the estimated cost of production was Rs. 836 per acre. The estimated cost of production in 1961 was Rs. 1,300 per acre.

18. But at the same time, the crop could be abnormal in a year in most of the coffee-growing areas and normal or above normal, during the same year, in some other growing areas—depending mostly upon the blossom and backing showers received. Considering the blossom showers received in Aldur during 1964-65, it is rather difficult to consider the year 1964-65 as being abnormal for the Aldur zone.

19. It was originally thought to fit production functions of independent and important inputs within each group to study the significance of contribution of each factor in the yield per acre of the crop. But since by visual observation, any production relationship could hardly be recognized between factors such as the costs per acre of fertilizer input, spraying, gamaxin swabbing, pruning, weeding, etc., and yield per acre, within each group and between the groups, no such attempt has now been made in that direction.

The main findings of the Aldur study are:

1. The average coffee area per planter was about 55 acres, with a range from 10 acres to above 200 acres. The average paddy area owned by a planter was about 3 acres, and coffee and orange mixed area was about 15 acres.

2. Estates of smaller size contained more younger plants than the estates of bigger size.

3. On an average, the net expenditure per acre of paddy was about Rs. 235 and for orange Rs. 150. The average net income per acre from paddy was about Rs. 90 and from orange about Rs. 100.

4. The size of the estate had no direct bearing with the cost of production of coffee, except perhaps with the costs of spraying and gamaxin application.

5. The total cost of production of coffee per acre was about Rs. 900. Out of the total cost of production, cultivational cost accounted for about Rs. 500 (55 per cent), cost of preparing the produce for the market for about Rs. 100 (10 per cent) and 'other costs' for about Rs. 300 (35 per cent). Inputwise, labour costs accounted for about 40 per cent of the total costs, and material costs for about 20 per cent. Out of pocket costs (cash costs) in the estimated total cost amounted to about 75 per cent.

6. The average pre-tax profit per acre of coffee production was Rs. 275. However, the estates under the size-group of 100 to 200 acres incurred a loss of Rs. 11 per acre. On the basis of output-input coefficients under the different size-groups of estates, it appeared as though it was more economical to own an estate of the size of either 200 acres and above, between 50 and 100 acres or between 10 and 25 acres than to own an estate of the size of 100 to 200 acres or 25 to 50 acres. While the class-intervals are too large to arrive at a definite decision, the trend is noteworthy.