Role of Government and Structural Changes in Rubber Plantation Industry

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The government's policies towards the rubber plantation industry in terms of various incentives have had far-reaching consequences for the industry's development and structure. In this paper the authors critically examine the structural changes in the industry since the 1950s and analyse the major government policies that have played a positive role in the development of the industry during this period.

IT is a common experience across countries having different economic systems (ranging from free market to controlled or planned economies) that the prevalence of a positive government policy towards agriculture in general or individual crops in particular, is designed to achieve certain specific objectives from a long-term perspective. The policy may vary from a protected internal market to radical land reforms or high rates of subsidy and administered prices. The protected farmer of Japan and the heavily subsidised wheat cultivator of the US are two examples. Similarly, the radical land reforms in South Korea prior to its large-scale industrialisation and the system of subsidies and administered prices for farm products in the Soviet Union are a few instances of such a policy. The objectives of such policies also vary from country to country depending upon the prevailing system of agriculture and the peculiarities of the crops concerned. However, a broad outline of such objectives can be summarised as follows:

(a) For achieving self-sufficiency in production;
(b) The number of farmers or dependents on the crop concerned are very large, and therefore, the government follows a policy of protected market and administered prices coupled with subsidies; and
(c) For increasing the production of crops of strategic, commercial or industrial importance.

In India, the government's policy towards natural rubber (NR) cultivation encompasses the salient features of the three objectives mentioned above. First of all, there is no disagreement on the strategic importance of NR as an industrial raw material since it is estimated that around 35,000 different products ranging from aero-tyres to rubber bands can be manufactured from it. Secondly, compared to all other major NR producing countries, India has the unique characteristic of having a relatively well-developed rubber goods manufacturing sector and very often, it is a net importer of NR whereas the domestic consumption of others is less than 10 per cent of their total production.[1] Today, India is the fourth largest producer of NR in the world having a total area of 3,84,000 hectares under rubber (the net tappable area is around 2,37,064 hectares) and the estimated total production is 2,19,520 tonnes. It is also interesting to note that at present there are more than 3 lakh producing units and more than 99 per cent of them belong to the size group of below 20.23 hectares[2] and this group's relative shares in total area and production are around 80.34 per cent and 74.66 per cent, respectively.[3] In other words, few other major plantation crops grown in the country can claim the dominant position enjoyed by the small growers in the rubber plantation sector.

The scope of this paper is limited to an analysis of the development of the industry and the implications of the policies pursued by the government from time to time. Since independence the policies pursued by the government towards the industry in terms of various incentives had far-reaching consequences on its development and structure. Though the structural changes in the industry were analysed in an earlier work,[4] an analysis of the role of the government policies in the development of the industry is the outcome of a fresh initiative. The paper is organised in three parts. Part I summarises the role of various contributing factors on the evolution of the industry prior to independence. Part II deals with an analysis of the major government policies that played a positive role in the development of the industry since independence. Part III of the paper critically examines the structural changes in the industry since the 1950s.

I

Evolution of Rubber Plantation Industry in India

Plantation agriculture is generally the outcome of the colonisation of tropical areas by the Europeans. The two important factors that were instrumental in the successful introduction of plantation agriculture in the colonial India were British capital and initiative along with the favourable agro-climatic conditions and the availability of cheap land and labour. The major interest behind the initiative taken by colonial powers in opening up underdeveloped regions for plantation agriculture is a well-debated issue and today there is general agreement that the main motive force was the inexorable hunger of capital for raw materials and markets rather than "the adventurer's desire to unravel the mysteries of East".[5]

Even though rubber trees (Ficus Elastica) indigenous to Indian forests were tapped on a large-scale in Assam before the introduction of Para rubber (Hevea Brasiliensis), the initial efforts to grow rubber on a commercial scale never got beyond the experimental stage before 1900. The recorded out-turn of raw rubber from Assam during 1880-1890 averaged between 200-400 tonnes annually.[6] In 1902, J J Murphy, J A Hunter and K E Nicoll and C M F Ross formed the Periyar syndicate in Travancore and started planting with Para rubber which has generally proved by far the most suitable variety for cultivation in south India and by 1914 it practically ousted the other trees from production. Though rubber planting was taken up on a commercial scale in other parts of the country, it was Travancore which became the leading centre of rubber cultivation.[7] Rubber was first planted in the erstwhile Cochin state in 1905 and by 1907 the total area under rubber in this region was more than 404.86 hectares.

Although rubber cultivation had its start on a plantation scale by British planters, subsequent increase in area under the crop is attributable to the enterprise of a large number of Indian proprietary planters belonging to the former native states of Travancore and Cochin who came into the field later. In fact, even today around 90 per cent of the total area under rubber in the country belongs to Kerala which was formed in 1956 comprising the former Travancore-Cochin state and the Malabar region of the Madras presidency. The importance of rubber in the Kerala economy also arises from the fact that the share of rubber in the total area under the four major plantation crops of the state (rubber, coffee, tea and cardamom) is estimated to be 66.93 per cent and its share in total cropped area in the state is 11.40 per cent during 1985-86.[8] Therefore, any attempt to delineate the factors that played a significant role in the development of the industry, invariably has to examine the major motive forces and the socio-economic conditions that prevailed in the region during the infancy of the industry.

Agro-climatic conditions are an important factor, limiting the choice of new areas for rubber planting. To obtain maximum growth, to reduce the expense on disease control and cost of production, the crop should be established under the best possible conditions. Experience shows that Hevea Brasiliensis grows best where the rainfall is between 80-120 inches, well distributed throughout the year and with no excessively wet or dry period. Rubber grows in the tropical belt lying within 15° north and 10° south of the equator and generally at elevations below 1000 ft. A loamy soil of good texture is preferred for rubber growing to hard laterite soils.

In India, conditions approximating to the above mentioned parameters obtain in the foot hills of Western ghats and Andaman Islands. In India, while many of the estates are located in the foot hills of Western ghats, small growers appear to be concentrated in areas where estates first developed. But owing to certain land policies and the subsequent changes in the pattern of agriculture, which we shall see later, a number of small holdings have appeared on lower lying areas also. The dominant position of Kerala in rubber is to a large extent, on account of the favourable agro-climatic conditions compared to other states.

Prior to independence, there were important differences in the land policies followed in the three constituent regions of Kerala which had serious implications in terms of the intra-regional development and the pattern of agricultural growth mainly due to historical reasons.[9] In Travancore, after the consolidation of political power, nearly two-thirds of the entire cultivated area was brought under state ownership as early as the first half of the nineteenth century. Later, in 1865, through a royal proclamation, full ownership rights were conferred on the tenants of such state-owned land which in turn led to the emergence of a new class of peasant proprietors in Travancore. Cochin followed suit towards the end of the century. In the Malabar region, though waste lands were available in greater abundance, they were in the hands of local chieftains. The conditions of tenancy imposed by the owners and the judicial decisions which gave support to them proved to be serious deterrents for dynamic agricultural growth.[10] Only about 60 per cent of the total arable land was therefore under cultivation in Malabar even as late as the 1930s, while almost all the land was under effective occupation in Cochin and Travancore. On the whole land tenures in Travancore and Cochin evolved in such a way as to cause dynamic agricultural development. On the other hand, Malabar lagged behind. In Travancore, as a result of the tenurial reforms, commercial agriculture developed further and there was a growing reinvestment of surplus and profits made in the land and commodity markets. Moreover, it is interesting to note that some of the new owners were closely associated with financial and trading activity which helped them to purchase more land and develop and expand the area under commercial crops.

As a result of these changes commercial cultivation in this region gathered further momentum and among the four main plantation crops developed, rubber was by far the most dynamic in terms of the rate of expansion and it was in that sphere the role of the planters from Travancore was also the greatest. In Travancore, leases for plantations were issued by the state forest department and the land revenue department at nominal rates of tax compared to the profit margin earned from the venture. For instance, for the first eight years the lessor had to pay only 50 paise per acre per annum and from the ninth year, the rate was increased to Rs 1.50 and from the twelfth year, to Ps 2 per acre per annum. In Cochin, the land tax was fixed at Re 1 per acre for tea and coffee and Rs 2 for rubber and Rs 3 for cardamom plantations.[11] Though the expansion of area under rubber in this region received a set-back during the depression of 1929, the area under rubber was well over 4,048.58 ha by 1950 and the rate of expansion was at a much faster pace thereafter. The economic foundation on which such a dynamic development was built mainly within the framework of peasant proprietorship that took shape in Travancore between the two world wars.

In Cochin also, most of the plantations came upon government land, particularly in the Nelliampathy area. The favourable conditions for leasing or purchasing land, among other things helped the development of 1,700 acres of tea, 200 acres of coffee and 6,800 acres of rubber in the state by 1949-50. Similarly, in Madras presidency, the rent was (after an initial period of 3-5 years depending on the region) generally fixed at Re 1 per acre.[12]

Even after the abolition of slavery in all three constituent areas of Kerala by the middle of the 19th century, it was difficult to get enough labourers from the Kerala plains to the plantations, primarily because various forms of bondage still existed in most areas. Consequently, the pioneers had to recruit labour from the famine-hit southern Tamil districts.[13] The system of labour recruitment prevalent was through agents, viz, Kanganies, on a family basis. Table 1 summarises the labour recruiting position in south India during 1896.

However, it is pointed out that the 'moplas' of Malabar region had been the perennial source of recruitment for rubber tapping till the peasant classes of Travancore and Cochin took to this work and were employed to a considerable extent as tappers.[14] Thus it appears that while a relatively more labour intensive tea plantations in the state depended on immigrant labour, a considerable part of the rubber areas drew their labour from local sources.

Till the late 1930s one of the main characteristics of the Indian rubber plantation industry was its export orientation. Though beginnings were made in the 1920s, it was only in the late 1930s that the rubber goods manufacturing industry stabilised on the Indian scene.[15] Thus during the initial phase of the rubber plantation industry, raw rubber was mainly exported to London since many of the British owned planting companies were London-based and moreover, London played an important role in the entrepot trade with other European countries. In this connection, it is worthwhile to point out the major commercial and administrative reforms in the region which played a positive role in the export trade of rubber.

The Companies Act was introduced as early as 1862, helping the concentration of capital and the establishment of large undertakings. This had important implications on the future development of the industry. Similarly, the British Indian currency was made legal tender in Travancore in the early 1860s followed by the establishment of a branch of the Bank of Madras in Cochin in 1862. The commercial laws of the region were reformed in the course of the 19th century in such a way as to make this region fit in with the general pattern of economic activity in the British administered areas. Another important factor which helped the growth of plantations was the development of transport and communication facilities, linking up producers of plantation crops with port towns and through them to larger markets. Within this general pattern of development, proportionately more development of transport and communication facilities occurred in the plantation areas, with the active co-operation and investment from the planters themselves.[16]

Favourable Prices

Another important positive factor which played a crucial role in the initial phase of the industry was the favourable prices. The invention of pneumatic tyres and the emergence of internal combustion engines

Table 1: Labour Recruiting Position in South India during 1896

(In percentage)

Region	Local Labour*	Labour Imported from British India	Labour Imported from Mysore
Wynadu	20	54	26
Nilgiris	17.5	44.5	38
Madurai	86	14	—
Tirunelveli	80	20	—
Coorg	20	53	27
Mysore	37.5	62.5	—
Travancore	20	60	20
Cochin	4	96	—

Note: * Labour from adjacent areas surrounding plantations.

Source: 'South Indian Planters' Inquiry Committee Report', 1896, cited in Percival Griffiths, *The History of Indian Tea Industry*, London, 1967, p 400.

by the end of the 19th century led to substantial increase in the demand for rubber which was till then obtained from the Brazilian jungles. The world production of rubber in 1900 was about 45,000 tonnes against an estimated consumption of 52,500 tonnes. This increased demand resulted in an all-time record price of $ 2,267 per tonne of rubber in the New York market. However, during the course of the first world war due to restriction of export to Germany and other countries, the NR price took a sharp plunge in the early 1920s. For instance, the price (RSS1, London Spot) declined from 256 cents/kg in January to 87 cents/kg in December 1920. The annual average prices for 1921 and 1922 were only 77 cents/kg and 73 cents/kg respectively. But voluntary restriction of production[17] resulted in increased prices and in 1925 the average annual price was 251 cents/kg (FOB). During this period the area under small holdings in India expanded considerably and the increase was about 200 per cent between 1925-28 while the increase in area under the estates was only 30 per cent. Export of rubber from India was increasing till 1929 and thereafter declined owing to slump in prices on the background of the depression of 1929.

Rubber prices reacting sensitively to changed demand conditions, nosedived from 82 cents/kg in 1929 to the rock bottom level of 20 cents/kg in 1932. In order to cushion the adverse effects of the price slump, the, major producing countries entered into an agreement (The International Rubber Regulation Agreement 1934) which was enforced from 1934. The agreement effectively covered over 93 per cent of the international area under rubber. Under the agreement, export quotas were allotted to each producing country supplemented by restrictions on planting and replanting. Local committees were formed in each country to enforce the regulations of the agreement. In India, the Indian Rubber Licencing Committee was established in 1934 with its head-quarters at Kottayam under the Indian Rubber Control Act, 1934. The agreement was later extended till 1943 before finally terminating in 1944 during the second world war.

TABLE 2: EXPORT OF RUBBER FROM INDIA DURING 1922-1933
(Quantity converted into MT)

Year	Quantity
1922	4979
1923	3861
1924	4572
1925	6401
1926	6604
1927	7112
1928	7316
1929	8027
1930	6909
1931	5487
1932	1118
1933	1422

Source: K E Knorr, *World Rubber and Its Regulation*, Stanford University Press, Stanford, California, 1945, p 248.

The International Rubber Regulation Agreement was successful in stabilising the prices at remunerative levels and the prices rose to 50 cents/kg in 1934 from 27 cents/kg a year earlier. The result of the agreement was in sharp contrast to the previous experience of voluntary restriction when prices were relatively unstable.

During the second world war Malaya and other south-east Asian countries were conquered by Japan which left India and Ceylon as the main sources of supply of NR to the allied nations. It was a turning point in the history of the Indian rubber plantation industry. A rubber production board for increasing production of rubber was set up by the issue of the Rubber Control and Production Order (1942) under the Defence of India Rules and rubber was brought under price control. This marks the beginning of governmental price regulation for rubber and a government purchasing organisation was simultaneously set up.

During the war, the Indian rubber plantation and rubber goods manufacturing industries had undergone a thorough change. Domestic consumption of NR was increasing at a faster pace and, therefore, price regulation had to be continued as an essential inducement to the production drive. After the war, the government passed the Rubber Production and Marketing Act (1947) for the continued application of regulatory measures. This act was amended in 1954 and the name was changed to the Rubber Act.

From the foregoing analysis of the various factors which played a positive role in the development of the rubber plantation industry in India, it becomes obvious that the price factor assumes relatively more significance since the industry was exposed to the world NR market till the 1940s. On various occasions, the prices were protected from falling below remunerative levels which, to a large extent, played a pivotal role in maintaining the tempo of growth of the industry.

II

Government Policy and Dynamic Growth of Industry

As outlined in the preceding sections, the development of the rubber plantation industry in India was made possible by the interaction of various socio-economic factors since its inception. But its subsequent dynamic growth since independence was propelled by a host of other factors; mainly in the form of incentives provided by the government at the levels of cultivation, production and marketing of rubber which were actively supplemented by a growing internal demand which outstripped the internal production as early as 1948.[18] Since independence the two main considerations of the government of India with reference to the industry are the following:

(a) To enhance production for meeting the growing internal demand by increasing the productivity in existing areas and extension of cultivation to new areas.

(b) To ensure a remunerative price as an incentive to the growers so as to achieve the goal of self-sufficiency in production.

The following sections attempt to examine various measures introduced by the government to achieve the objectives at different phases of the growth of the industry.

At this juncture, it is necessary to mention that various policies of the government of India pertaining to rubber plantation industry are implemented through the Rubber Board which was constituted under the Rubber (Production and Marketing) Act, 1947. This act was subjected to amendments in 1954, 1960 and later in 1982 to suit the changing requirements of the industry. The Rubber Board functions under the ministry of commerce, government of India. The Rubber Research Institute of India (RRII) attached to the Rubber Board was established in 1955 to undertake scientific research on the various aspects relating to the industry and for giving technical advice to the growers with the main objective of attaining the desired goals.

One of the thrust areas of action after independence was the enhancing of production and productivity by evolving high yielding varieties (HYV) of planting materials and popularising the scientific application of fertilisers and fungicides. Fourteen different types of planting materials have been so far developed at the RRII though only one variety is brought under the Class I group.[19] The advantages of planting the HYV suited to different regions are propagated by the Rubber Board through its network of extension offices numbering around 154 spread over the rubber growing regions of the country in addition to six regional experimental stations. Moreover, the board maintains 23 nurseries in important areas, supplying HYV planting materials. Along with these promotional efforts, the financial incentives in the form of replanting subsidy introduced since 1957 have resulted in a substantial increase in the area under HYV planting materials both in the small holdings sector and in the estate sector. Table 3 illustrates the point.

Table 3 shows that there was a steady increase in area under HYV planting materials and in 1985-86 its share was 88.55 per cent in the small holding sector and 99.24 per cent in the estate sector respectively. Another important line of action was the advisory service on the proper application of fertilisers and fungicides. Not only sufficient progress was made in evolving suitable methods of application of fertilisers and fungicides, the Rubber Board has introduced various schemes of financial assistance to popularise the scientific application of the same.[20] As a result of the

introduction of various development schemes, the yield rate has gone up and today the average yield rate of the industry is next only to Malaysia. Table 4 shows the trends in the average yield rates of the Indian rubber plantation industry.

One of the important factors which is instrumental in raising the yield rate is the Replanting Subsidy Scheme introduced in 1957. One of the main characteristics of the scheme was that along with financial assistance, concrete steps were taken to replant the existing areas with HYV planting materials. During the period between 1957 to March 1987, more than Rs 119 crore have been disbursed as subsidy for replanting a total area of 53,605 ha and granting 34,822 permits. It is interesting to note that the emphasis was on small growers whose respective shares are 69 per cent in the total amount disbursed and 55 per cent in the area covered and 95 per cent of the permits granted. Moreover, additional assistance granted to small holders in respect of fertilisers, planting materials and soil conservation amounted to more than Rs 2 crore as on March 1987. The details mentioned above are suggestive of the government's policy directed towards raising productivity in the traditional areas as one of the means to achieve the goal of self-sufficiency in production.

Another important strategy adopted by the government for increasing production was extension of cultivation in traditional as well as in non-traditional areas. In this process, the concerned state governments have also taken an active interest by establishing rubber plantations under public sector corporations. For instance in 1962 the plantation corporation of Kerala was established which took over the departmental plantations already set up by the government. Subsequently, forest departments of the governments of Tamil Nadu and Karnataka started planting rubber on a large scale. Since 1963 trial and commercial planting have been undertaken in the north-eastern belt of the country under the initiative of the government and consequently commercial-scale plantations were established by the public sector corporations of Assam and Tripura. In Meghalaya and Mizoram the state soil conservation departments and in Manipur the forest department are undertaking rubber plantations. Table 5 shows the area under public sector corporations in different states.

In the north-eastern belt more than 70 per cent of the total area under rubber belongs to the public sector corporations. Of late individual entrepreneurs are also coming forward to plant rubber in these areas. Efforts are being made to start large-scale commercial planting of rubber in the states of Madhya Pradesh, Andhra Pradesh and Orissa.

In 1979, a comprehensive credit linked subsidy scheme known as New Planting Subsidy Scheme (1979) was introduced with the objective of increasing production through extensive cultivation. The scheme was applicable only to small growers with a capital subsidy of Rs 5,000 for an area up to 20.23 ha. The popularity of the scheme was evident from the fact that against a modest physical target of 4,000 ha, permits were issued by the rubber board for an area of 6,992.09 ha. However, this scheme was succeeded by an integrated scheme entitled Rubber Plantation Development Scheme, Phase I (1980-84), where new planting and replanting subsidy schemes were merged and were given equal importance.

The new scheme was applicable to both small and large growers with varying scales of assistance. A cash subsidy of Rs 5,000 per hectare to small growers and Rs 3,000 per hectare to large growers are granted for undertaking new planting or replanting of rubber. Table 6 summgrises the progress and achievements of the scheme.

During the five-year period of its operation, the scheme could achieve its physical targets and it is continued in Phase II (1985-89). But in the Phase II scheme eligibility for subsidy in the traditional areas is limited to growers having an area up to 5 ha whereas all categories of growers are eligible in the non-traditional areas.

Historically, in Kerala another important factor which helped the extension of rubber cultivation was the land reforms introduced in the state since 1956. An important characteristic of the land reforms was that all the plantation crops were exempted from land ceiling while maximum limits to individual holdings for other crops were introduced. One of the immediate consequences of this legislation was that many agriculturists shifted to rubber cultivation wherever the land and agro-climatic conditions were congenial, to escape from the land ceiling.

The initiative of the government was not confined to rubber cultivation and production, but active encouragement was given for modern scientific processing of raw rubber by establishing group processing centres in the co-operative sector and under the public sector corporations. At present, there are seven such group processing factories in the co-operative sector and five factories under the public sector. The factories in the co-operative sector are established with the active involvement of the rubber board with the main objective of processing raw rubber into premium materials which will enable the small grower to realise a higher income for his produce. A few more such processing centres are under the active consideration of the rubber board.

The objectives of the positive policies followed by the government since in-

TABLE 4: TRENDS IN YIELD RATES FROM 1955-56 TO 1985-86

Year	Average Yield Per Hectare (Yield in Kg)
1955-56	353
1960-61	365
1965-66	448
1970-71	653
1975-76	772
1980-81	788
1985-86	898

Source: Same as Table 3, pp 8-9.

TABLE 5: AREA UNDER PUBLIC SECTOR CORPORATIONS IN DIFFERENT STATES AS ON MARCH 1987

State	Area under Rubber Cultivation (in Hectares)
Kerala	12144
Tamil Nadu	4598
Karnataka	4633
Tripura	6610
Assam	1900
Meghalaya	1600
Mizoram	550
Nagaland	530
Manipur	475
Arunachal Pradesh	30
Orissa	44
Goa	548
Maharashtra	80
Andaman and Nicobar Islands	844
Andhra Pradesh	20
Grand Total	34606

Source: Statistics and Planning Division, Rubber Board, Kottayam.

TABLE 3: TRENDS IN SECTORWISE AREA UNDER DIFFERENT PLANTING MATERIALS (1955 TO 1985-86)

(Area in hectares)

Year/Sector	Small Holding Sector			Estate Sector			Grand Total		
	HYV	Ordinary	Total*	HYV	Ordinary	Total	HYV	Ordinary	Total
1955-56	2681	33607	36288	14874	32705	47579	17555	66312	83867
1960-61	22743	53632	76375	23811	29719	53530	46554	83351	129905
1965-66	43929	57936	101865	38679	24169	62848	82608	82105	164713
1970-71	75617	60808	136425	54672	12001	66673	130289	72809	203098
1975-76	101024	57758	158782	63435	2211	65646	164459	59969	224428
1980-81	166513	42650	209163	68110	784	68894	234623	43434	278057
1985-86	262745	33981	296726	72072	550	72622	334817	34531	369348

Note: * Includes unclassified area also

Source: *Indian Rubber Statistics*, Vol 18, 1987-88, Rubber Board, Kottayam, p 9.

dependence at the levels of cultivation, production and processing would not have materialised to the desired extent, had the government been neutral at the price front. In fact, a variety of control measures on rubber price introduced by the government since independence have played a very crucial role in the dynamic growth of the industry.

The introduction of Rubber Production and Marketing Act (1947) empowered the government to notify maximum and minimum prices and price regulation was continued as an essential inducement to the production drive. Prices were revised from time to time in accordance with the increase in cost of production which is estimated on the basis of the inquiries into costs by government cost accounts department. Though the direct purchase of rubber by the government was stopped in 1945, the control on prices remained. Since independence, whenever the growers began pressing for an increase in the minimum price to meet the rising production costs, the Tariff Commission was requested to make a detailed investigation into the conditions of the industry. The commission conducted such inquiries in 1950, 1952, 1959 and 1967. Till 1968, prices were kept at suitable levels through control measures to cover adequately the cost of production and a reasonable rate of return. To a large extent, these control measures reflect the degree of protection extended to the industry from external competition.

However, the maximum price was removed in the late 1968 and thereafter the NR prices in the 1970s are characterised by wide fluctuations. The fluctuations were mainly intra-year in nature, i e, month to month within a year. The prices were showing marked seasonality till the year 1973-74 and since 1974-75 there have been wide fluctuations on account of important policy changes with respect to imports, exports and the amount of raw material stocks to be held with the manufacturers. In this context, it is interesting to note that the government initiative with regard to NR prices has entered a new phase mainly through the involvement of State Trading Corporation of India (STC) to stabilise prices at remunerative levels. For instance, the STC was directed to enter the market during 1970-71 and 1971-72 to check the falling prices due to accumulation of stocks. Later in 1973-74 and 1974-75 NR exports were undertaken from India partly by the STC and partly by the growers on account of reported surplus and falling prices. Another important policy change in the 1970s was that since 1975 the NR imports are canalised through the STC which were till then left to the manufacturers of rubber goods based on the import quotas prescribed by the government. In 1976-77 and 1977-78 also, there were small-scale exports due to surpluses.

TABLE 6: PROGRESS AND ACHIEVEMENTS OF RUBBER PLANTATION DEVELOPMENT SCHEME PHASE—I (1980-1984)

Year	Number of Permits Issued	Area (in ha)	Amount Paid (Rs in lakh)
1980	17428	12074.56	258.00
1981	18805	13380.00	586.55
1982	18482	13615.84	561.75
1983	20301	15027.70	593.12
1984	22695	16275.72	642.40
Total	97711	70373.82	2941.82

Source: *Rubber Growers Companion*, 1988, Rubber Board, Kottayam.

The policy of notifying minimum price for NR was continued in the early 1980s based on the estimated cost of production. Imports of NR are canalised through the STC based on the estimated gap between production and consumption by the Rubber Board. However, in 1986 there was an unprecedented fall in prices mainly on account of untimely imports and release of NR and the consequent accumulation of stocks with the dealers and manufacturers. The government reacted by directing the STC to enter the market and purchase operations were continued till the prices reached the prescribed minimum levels.

To summarise, it is relevant to mention that the policies followed by the government with regard to price and imports were poised for a dynamic growth of the industry in terms of increased productivity, production and expansion of area under the crop. The efforts at different levels are, to a large extent, necessitated and supplemented by a faster rate of growth of domestic consumption sector resulting in a deficit supply ranging from 15 per cent to 20 per cent. One of the major consequences of the government policies was the structural changes in the industry favouring the growth of dominant small holdings sector. The following part of this paper analyses the structural changes in the size of holdings, geographical distribution of the area under rubber and the ownership pattern.

III

Structural Changes in Industry

Even in the early 1950s British interest in the industry was considerable and as on December 1953 foreign investment in Indian rubber plantation industry was estimated to be around Rs 225 lakh.[21] The Indian companies and proprietary concerns made an early entry into rubber planting compared to tea planting and consequently the non-Indian control over the rubber plantation industry was relatively less than tea at the time of independence. For instance, the share of small holdings (in the size group of below 20.23 ha) in the total area under rubber cultivation was 31.79 per cent in 1949 and this pattern was subsequently diffused further on account of various factors which will be dealt in succeeding sections.

Among the subsequent developments in the industry, one of the most striking is the preponderance of the small holdings since the mid-1950s. Table 7 summarises changes in the size-wise distribution of the producing units and the area from 1955-56 to 1985-86.

From Table 7, it becomes evident that for the industry as a whole there was a diffusion in the size of the producing units owing to a relatively more increase in the number of producing units (1064.04 per cent) compared to the increase in the area under cultivation (340.40 per cent) during 1955-56 to 1985-86. However, there are sector-wise differences as evident from a considerable decline in the average size of the units in the small growers' sector contrary to a reverse trend in the estate sector which is marked by a process of consolidation.

Table 7 shows that the small holdings as a group has considerably strengthened their position and among all the size groups it is the smallest size group (2 ha and below) which has recorded maximum increase in the number of units (1181.89 per cent) and the area under cultivation (1087.33 per cent). The trends in the estate sector are not uniform. Except the two largest size groups (400-800 and 800 and above), other groups have shown a negative trend both in respect of number of units and the area under cultivation.

In the small holdings sector, the relative shares of all the size groups with respect to area have increased except that of the 4 to 20 ha size group. However, in the estate sector, except in the case of 800 ha and above size group, the relative shares of all other groups with respect to area have come down over the years.

Table 7 also shows that the growth of small holdings sector was more pronounced during the period between 1955-56 and 1960-61 when the increases in the number of units and the area were more than 100 per cent. One of the possible reasons behind such a trend could have been the proposed land reforms in the state of Kerala which had exempted all the plantation crops from the land ceiling and consequently, many agriculturists have shifted to rubber cultivation from other crops such as coconut and arecanut. A relatively remunerative price of rubber as well as the various incentives given by the Rubber Board have accelerated this process of shifting. The introduction of replanting subsidy in 1957 has forced many unregistered growers to register with the Rubber Board so as to avail the facility. Another important consideration which might have influenced the growers to limit the size of their holding below 10.117 hectares was to escape from the provisions of the Plantations Labour Act (1951). Later increases in this sector can be attributed to factors such as the prevailing law of inheritance in the state of Kerala and the differential slab rates and exemptions provided under the Agricultural Income Tax in Kerala. Since 1970s another important development

TABLE 7: TRENDS IN SIZE-WISE DISTRIBUTION OF AREA UNDER HOLDINGS AND ESTATES (1955-56 TO 1985-86)

(Area in hectares)

Size Group/ Year	1955-56		1960-61		1965-66		1970-71		1975-76		1980-81		1985-86		Percentage Change over the Period	
	No of Units	Area	No of Units	Area	No of Units	Area	No of Units	Area	No of Units	Area	No of Units	Area	No of Units	Area	No of Units	Area
2 ha and below	23364 (85.7)	18289 (21.81)	49636 (85.99)	38340 (29.51)	65477 (86.00)	51433 (31.22)	95414 (85.51)	69870 (33.71)	113757 (86.15)	81908 (36.51)	177750 (90.68)	132650 (47.70)	299500 (93.85)	217150 (58.79)	1181.89	1087.33
Above 2 ha and upto 4 ha	1948 (7.15)	5699 (6.79)	4660 (8.07)	13981 (10.76)	6175 (8.11)	18251 (11.08)	9922 (8.89)	29853 (14.40)	11386 (8.62)	29778 (13.27)	11424 (5.83)	30040 (10.84)	12824 (4.05)	53738 (19.13)	558.32	492
Above 4 ha and upto 20 ha	1475 (5.42)	12300 (14.67)	2878 (4.99)	24054 (18.51)	3852 (5.06)	32181 (19.54)	5593 (5.01)	42302 (20.41)	6306 (4.78)	47066 (20.97)	6289 (3.21)	46373 (16.68)	6295 (1.98)	45836 (12.42)	326.79	272.67
Sub-total (holdings)	26787 (98.36)	36288 (43.27)	57174 (99.05)	76375 (58.79)	75504 (99.17)	101865 (61.84)	110929 (99.41)	136425 (65.82)	131449 (99.55)	158782 (70.75)	195463 (99.72)	209163 (75.22)	316619 (99.88)	296726 (80.34)	1091.99	717.70
Above 20 ha and upto 40 ha	209 (0.77)	6781 (8.09)	278 (0.47)	7590 (5.84)	325 (0.43)	9556 (5.80)	309 (0.28)	8773 (4.32)	289 (0.22)	8235 (3.67)	258 (0.13)	7289 (2.62)	137 (0.04)	4320 (1.17)	−34.45	−36.29
Above 40 ha and upto 200 ha	179 (0.66)	15047 (17.94)	216 (0.38)	17812 (13.71)	248 (0.33)	20476 (12.43)	273 (0.24)	21318 (10.49)	242 (0.18)	19332 (8.62)	228 (0.12)	18659 (6.71)	171 (0.05)	14406 (3.90)	−4.47	−4.25
Above 200 ha and upto 400 ha	33 (0.12)	9578 (11.42)	29 (0.05)	8082 (6.22)	30 (0.04)	8551 (5.19)	29 (0.03)	8279 (4.08)	27 (0.02)	7366 (3.28)	25 (0.01)	7440 (2.68)	24 (0.01)	7301 (1.98)	−27.27	−23.78
Above 400 ha and upto 800 ha	19 (0.07)	10275 (12.25)	23 (0.04)	12205 (9.40)	23 (0.02)	12096 (7.35)	26 (0.03)	14002 (6.90)	26 (0.02)	14218 (6.34)	25 (0.01)	15093 (5.43)	32 (0.01)	18340 (4.96)	68.42	78.49
Above 800 ha	6 (0.02)	5898 (7.03)	8 (0.01)	7841 (6.04)	10 (0.01)	12169 (7.39)	12 (0.01)	14363 (7.07)	14 (0.01)	16475 (7.34)	17 (0.01)	20372 (7.33)	20 (0.01)	28249 (7.65)	233.33	378.96
Sub-total (estates)	446 (1.64)	47579 (56.73)	547 (0.95)	53530 (41.21)	636 (0.83)	62848 (38.16)	649 (0.59)	66673 (32.83)	598 (0.45)	65646 (29.25)	553 (0.28)	68894 (24.78)	384 (0.12)	72622 (19.66)	−13.90	52.63
Grand Total	27233 (100)	83867 (100)	57721 (100)	129905 (100)	76140 (100)	164713 (100)	111578 (100)	203098 (100)	132047 (100)	224428 (100)	196016 (100)	278057 (100)	317003 (100)	369348 (100)	1064.04	340.40

Source: Same as Table 5. Figures in brackets indicate percentage share of each group for respective years.

TABLE 8: TRENDS IN STATE-WISE DISTRIBUTION OF AREA UNDER HOLDINGS AND ESTATES FROM 1961-62 TO 1985-86 *(Area in hectares)*

State/Year	1961-62			1965-66			1970-71			1975-76			1980-81			1985-86		
	Holdings	Estates	Total	Holdings	Estates	Total	Holdings	Estates	Total	Holdings	Estates	Total	Holdings	Estates	Total	Holdings	Estates	Total
Kerala	82924 (97.69)	49916 (89.15)	132840 (94.29)	98992 (97.18)	55886 (88.92)	154878 (94.03)	131949 (96.72)	55813 (83.71)	187762 (92.45)	153380 (96.60)	52003 (79.22)	205383 (91.52)	199972 (95.60)	47208 (68.52)	247180 (88.90)	279730 (94.27)	46980 (64.69)	326710 (88.46)
Tamil Nadu	1836 (2.16)	4402 (7.86)	6238 (4.43)	2691 (2.64)	5130 (8.16)	7821 (4.75)	4056 (2.97)	5959 (8.94)	10015 (4.93)	4868 (3.07)	6630 (10.10)	11498 (5.12)	6978 (3.34)	8535 (12.39)	15513 (5.58)	9142 (3.08)	7568 (10.43)	16710 (4.53)
Karnataka	127 (0.15)	1504 (2.69)	1631 (1.16)	158 (0.16)	1596 (2.54)	1754 (1.06)	378 (0.28)	4330 (6.49)	4708 (2.32)	480 (0.30)	6105 (9.30)	6585 (2.93)	1121 (0.54)	7336 (10.65)	8457 (3.04)	4560 (1.54)	6618 (9.11)	11178 (3.03)
Sub-total	84887 (100)	55822 (99.70)	140700 (99.88)	101841 (99.98)	62612 (99.62)	164453 (99.84)	136383 (99.97)	66102 (99.14)	202485 (99.70)	158728 (99.97)	64738 (98.62)	223466 (99.57)	208071 (99.48)	63079 (91.56)	271150 (97.52)	293432 (98.89)	61166 (84.23)	354598 (96.02)
Andaman and Nicobar Islands	—	171 (0.30)	171 (0.12)	—	236 (0.38)	236 (0.15)	—	347 (0.52)	347 (0.27)	—	878 (1.34)	878 (0.39)	22 (0.01)	818 (1.19)	840 (0.30)	45 (0.02)	820 (1.13)	865 (0.23)
Tripura	—	—	—	8 (0.01)	—	8 (0.00)	8 (0.01)	—	8 (0.00)	21 (0.01)	—	21 (0.01)	856 (0.42)	2587 (3.76)	3473 (1.25)	2210 (0.74)	5940 (8.18)	8150 (2.21)
Assam	—	—	—	—	—	—	—	—	—	—	—	—	13 (0.01)	798 (1.16)	811 (0.29)	170 (0.06)	1255 (1.73)	1425 (0.39)
Meghalaya	—	—	—	—	—	—	—	—	—	—	—	—	117 (0.05)	830 (1.20)	943 (0.34)	190 (0.06)	1415 (1.95)	1605 (0.43)
Nagaland	—	—	—	—	—	—	—	—	—	—	—	—	7 (0.00)	—	7 (0.00)	324 (0.11)	396 (0.55)	720 (0.19)
Mizoram	—	—	—	—	—	—	—	—	—	—	—	—	—	40 (0.06)	40 (0.01)	20 (0.01)	700 (0.96)	720 (0.19)
Manipur	—	—	—	—	—	—	—	—	—	—	—	—	—	220 (0.32)	220 (0.08)	160 (0.05)	290 (0.39)	450 (0.12)
Goa	—	—	—	—	—	—	—	—	—	—	—	—	18 (0.01)	472 (0.68)	490 (0.18)	152 (0.05)	548 (0.75)	700 (0.19)
Others	—	—	—	16 (0.01)	—	16 (0.01)	14 (0.02)	24 (0.04)	38 (0.03)	33 (0.02)	30 (0.04)	63 (0.03)	33 (0.02)	50 (0.07)	83 (0.03)	32 (0.01)	92 (0.13)	115 (0.03)
Grand total	84887 (100)	55993 (100)	140880 (100)	101865 (100)	62848 (100)	164713 (100)	136425 (100)	66673 (100)	203098 (100)	158782 (100)	65646 (100)	224428 (100)	209163 (100)	69394 (100)	278057 (100)	296726 (100)	72622 (100)	369348 (100)

Note: Figures in brackets indicate percentage share of respective items in the total area under rubber.
Source: Same as Table 1.

which contributed to an increase in area under rubber in the small holdings sector was the large-scale shifting of small tea growers to rubber cultivation mainly in the Kottayam district and marginally in other parts of the state.[22]

The major increase in the area under the estate sector took place during the period between 1960-61 and 1965-66. One of the main factors contributing to this increase was the emergence of public sector corporations which started planting rubber on a large scale since 1960 under the initiative of the government of India and the concerned state governments. Gradually, these corporations expanded the area under cultivation while some private companies converted their large tea estates into rubber mainly in southern Kerala. Subsequently, in the non-traditional areas also large areas were brought under rubber cultivation by the government departments.

Another important aspect of the structural change which deserves attention is the trends in the geographical distribution of area under the holdings and the estates. Table 8 summarises the trends in the geographical distribution of area under rubber during the last 25 years. It is interesting to note that while the relative share of the three traditional rubber growing southern states has declined only marginally by 3.86 per cent, the decline in the individual share of Kerala is comparatively higher (5.83 per cent). This change in the relative shares indicates that the decline in the relative share of Kerala is to a large extent compensated by an expansion of area under rubber in the states of Tamil Nadu and Karnataka. The share of non-traditional areas has increased by 3.86 per cent from 0.12 per cent in 1961-62 to 3.98 per cent in 1985-86 owing to considerable expansion of area in Tripura, Meghalaya, Assam and Nagaland.

Another important point emerging from Table 8 is the trends in the relative shares of holdings and estates between traditional and non-traditional areas. During the period between 1961-62 and 1985-86 the relative share of traditional areas in the total area under the holdings has declined only by 1.11 per cent whereas there was a substantial decline in the share of area under the estate sector to the tune of 15.47 per cent. One of the important reasons for such a trend in the estate sector is that a major portion of the area brought under the crop in non-traditional areas was in the estate sector (77.67 per cent as on March 1986). Secondly, there was an absolute decline in the total area under the estate sector in the state of Kerala since 1970-71 and the extent of this decline till 1985-86 was around 8,833 hectares or 15.83 per cent. Finally, it is important to note that the decline of area under the estate sector in Kerala is not sufficiently compensated by the expansion of area under the estate sector in the states of Tamil Nadu and Karnataka.

Another important aspect of the structural changes is the trends in the ownership pattern since independence. Though the data are available only for the estate sector, it is worth analysing the trend since almost all the producing units in the small growers' sector are proprietary concerns and other forms of ownership are negligible. Table 9 shows the trends in the ownership pattern in the estate sector from 1952-53 to 1985-86.

Table 9 is illustrative of the changes in the ownership pattern since the early 1950s. While the relative shares in area have declined in the case of both public limited companies and proprietary concerns and partnership firms, the respective shares have shown a positive trend in the other two forms of ownership. The most striking trend noted during the period is the considerable increase in the area under public sector concerns and the resultant increase in their share since 1962-63. This tempo of expansion of area under the public sector concerns was sustained with tremendous initiative during the 1970s and early 1980s.

Though it is difficult at this stage to interrelate the changes in the ownership pattern during the period, the following points are worth mentioning. Since independence, the increase in the area under the estate sector is mainly the outcome of the initiative of the public sector corporations and government departments. Ownership-wise, the average size of the holding is the highest (842.07 ha) for the estates under the public sector concerns. Though the area under public limited companies has decreased, it is interesting to note that the average size of the holdings has gone up over the years. The area under proprietary concerns and partnership firms has also come down during the period. It is evident from Table 7 that in the estate sector, except in the case of two largest size groups, area under rubber has declined in the remaining three size groups, during the period under consideration. This decrease in area in the estate sector is compensated by a more than proportionate increase in area under the holdings.

Even though the main motive forces behind the introduction of rubber plantation industry in India were the British capital and initiative, the dynamic growth of the industry was made possible by a host of positive factors prevailing mainly in the constituent parts of the modern state of Kerala. Various policies followed by the concerned authorities during the early phases of the development of the industry were conducive to the development of the industry; especially, the progressive nature of policies in the native states of Travancore and Cochin. However, the development of the industry was neither smooth nor even during its evolutionary period since it had to pass through the critical phases of the world wars and the great depression of 1929. One of the most important incentives for the expansion of cultivation during the early phase was a remunerative price though the industry was intrinsically integrated to the world market.

An important development since the late 1930s which had a strong bearing on the future course of events was the growth of an indigenous rubber goods manufacturing sector. The growth of this sector has thoroughly changed the basic character of the industry and by 1948, India became a net importer of NR. The most important concern since independence was to achieve self-sufficiency in production by enhancing productivity and expanding the area under cultivation to meet the growing domestic consumption requirements of rubber. The positive government policies designed at the levels of cultivation, processing and marketing resulted in a substantial increase in the area, productivity and production in spite of the fact that even today, there is an estimated gap of 15-20 per cent between production and consumption. The most significant among the various policies pursued by

Table 9: Trends in Pattern of Ownership in Estate Sector (1952-53 to 1985-86)

Years/Ownership	Public Limited Companies			Private Limited Companies			Government Department and Corporations			Proprietary Concerns and Partnership Firms		
	No of Estates	Area (in ha)	Percentage Share in Total Area	No of Units	Area (in ha)	Percentage Share in Total Area	No of Units	Area (in ha)	Percentage Share in Total Area	No of Units	Area (in ha)	Percentage Share in Total Area
1952-53	149	31249	66.02	—	—	—	1	32	0.07	314	16051	33.91
1962-63	132	30005	52.81	19	1749	3.08	8	3274	5.76	441	21792	38.35
1975-76	106	26919	41.00	33	2771	4.22	18	13852	21.10	441	22104	33.68
1979-80	108	27325	40.10	31	3278	4.81	29	18582	27.27	412	18955	27.82
1985-86	82	25108	34.57	25	2396	3.30	40	33683	46.38	237	11435	15.75

Source: Same as Table 5.

the government was its price policy which ensured the grower a remunerative price. In the process of expansion of the area, both the central and state governments have played an active role by bringing in more area under the public sector corporations and government departments.

The policies followed by the government had certain significant consequences on the structure of the industry in terms of changes favouring the growth of a dominant small holdings sector. Planting of rubber in the traditional and non-traditional areas by the governmental agencies has resulted in marginal changes in the geographical distribution of area under rubber and significant changes in the ownership pattern in the estate sector.

Notes

1 Since independence barring a few years in the mid-seventies, there was no significant NR exports from India. The deficit supply of NR in India is estimated to be between 15-20 per cent of total consumption. During 1986-87, the imported quantity of NR was 45,356 MT. On the other hand, the proportionate shares of consumption of leading NR producers expressed as a percentage of their relative NR production are as follows: Malaysia = 4.3 per cent, Indonesia = 6.6 per cent and Thailand = 5.0 per cent. For details see *Rubber Statistical Bulletin*, IRSG, January 1986, London, p 8 and *Indian Rubber Statistics*, Vol 18, 1987-88, Rubber Board, Kottayam.

2 As per The Rubber Act, 1947 (amended up to October 23, 1982) a 'small grower' means an owner whose estate does not exceed 50 acres of area.

3 The relative shares of this sector have gone up considerably since 1950. Details of this trend are given in Table 7.

4 The significance of the present study stems from the fact that it attempts to examine the link between the government policies and the structural changes in the industry.

5 Various studies on the political economy of underdevelopment of the developing countries whose economies are dominated by plantation agriculture suggest that accumulation of profit was the main motive force behind the colonisation of tropical areas and the subsequent introduction of plantation agriculture.

6 For details see V Haridasan (1975).

7 According to one estimate, it is pointed out that during 1910 Mundakayam alone had about 10,000 acres of area under rubber cultivation.

8 Compared to other plantation crops, the increase in the area under rubber was at a faster pace owing to various specific factors. For details on the trends in the area under different crops see *Economic Review*, State Planning Board, Trivandrum, 1987.

9 For instance see T C Varghese (1970).

10 For a detailed discussion on the factors behind the differences in inter-regional development of agriculture in Kerala before 1956 and the impact of land reforms implemented in the state, see K N Raj and P K Michael Tharakan (1983).

11 For details see the *Statistics of Travancore and Cochin (1949-50)*, Trivandrum, 1951, p 27.

12 For details see *The Report of the Plantation Inquiry Commission*, Part I (1956) and also see *History of Land Revenue Settlement and abolition of Intermediary Tenants in Tamil Nadu (1977)*.

13 It is to be noted that from the Tamil districts of Trichnopoly, Madura, Salem, Tirunelveli and Ramnad labourers were recruited for work not only in the plantations of Kerala but also to Ceylon and Malaya.

14 Compared to tea plantations, the ratio of native labour was higher in the case of rubber plantations of Kerala from the very beginning.

15 It was in 1930 that the first tyre plant was established in the country. Thereafter, there was a considerable growth in the rubber goods manufacturing industry and since 1947 the internal raw rubber production was not sufficient to meet the growing consumption requirements of the domestic manufacturing industry. For details see *Report of the Plantation Inquiry Commission*, Part III (1956).

16 The communication and transport facilities were relatively more developed in Travancore and Cochin compared to Malabar. See P Ibrahim (1976). Also see Usha Joseph (1974).

17 This voluntary restriction scheme popularly known as Stevenson Scheme was in operation from 1922 to 1928 confined to British plantations in Malaya and Ceylon after the failure to obtain co-operation of Dutch plantations in Netherlands East Indies.

18 In 1948, India had to import around 4,333 tonnes of NR to meet its internal consumption requirements.

19 Planting materials developed at the RRII are mainly classified into three according to their merits and demerits and adaptability to commercial cultivation.

20 For details see *Rubber Growers' Companion*, Rubber Board, Kottayam, 1988.

21 According to a Reserve Bank of India estimate, the total investment of sterling companies in the rubber plantations in India as on December 1953 was Rs 187 lakh. The corresponding figure for foreign investment in rupee companies was Rs 38 lakh. Thus the total foreign investment was Rs 225 lakh.

22 Unremunerative prices of tea-leaf compared to a relatively stable and remunerative price of rubber is considered to be the main reason for the large-scale shifting. For a detailed analysis, see Tea Board (1979), p 5.

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