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Editor's Note: University and college teachers and students of Economics, Political Science and Sociology/Social Anthropology are invited to send to us questions of wider interest on the subjects of their study. We shall endeavour to publish in subsequent issues of the journal answers to selected questions received by us. This will form a separate section of the journal. The authors of the selected questions shall receive complimentary copies of one year's issues of the journal, as a token of our appreciation.

PROSPECTS OF INDIAN AGRICULTURE

Nilakantha Rath

Indian agriculture has undergone a change during the last two decades. Till 1991, the population censuses show, the proportion of the total population engaged in agriculture, either as cultivators on own account or as wage labour, was steadily declining. But the total number of people so engaged was continuously increasing. The 2001 census showed that the total number of people working as cultivators had, for the first time since 1991, declined in most states. Even the total number of persons working in the main as wage labour had also declined. Only the number of marginal farm workers, that is, workers who reported working for less than six months in the year, had increased. And, this was mainly due to much larger number of women working as marginal farm workers.

The biggest increase was in the category of non-farm casual workers. The Economic Censuses of 1998 and 2005 showed that the non-farm regular, that is, salaried or self-employed persons, in traditional household manufacturing or trade had increased; but the biggest rise was in the category of casual labour. Regular workers in modern industry had showed little rise in numbers.

While we have to wait for the data on these for the just completed census, there is every reason to believe that the trend of 1991-2001 has continued: the absolute number of persons in agriculture has declined further.

The average size of cultivated land per cultivating household has also greatly declined. Today more than three-fourths of the cultivating households have less than one hectare of land to cultivate. This has been not so much due to the law of ceiling on agricultural land holding. It has been mainly due to the growth of population, leading to subdivision of land holdings.

The growing number of households or persons with very small holdings has led to some moving out of agriculture. They either lease out their little holdings or sell those to others or lose these to moneylenders or, in extreme situations, keep the land fallow. Of course, some persons with larger land holdings have moved out because they or their children found better sources of occupation and living. But, the overwhelming numbers belong to the very small and marginal landholding class. The non-increasing scope for wage labour in agriculture has also led to decline in full time wage labour in farming.

The total income generated in the agricultural sector, in most states, has increased over the years. Since the number of people dependent on agriculture has declined during the last twenty years, the per capita income of the population dependent on agriculture has slowly risen. But, for many the income is still below the poverty level. Most tribal farmers and farmers with small un-irrigated holdings are in a particularly disadvantageous position. That is the reason people are moving out of agriculture.

To-day in many regions farmers are complaining about inadequate availability of wage labour. Yet the number of wage workers is declining and people are moving out. How to explain this? The reason, it appears, is two-fold: In most regions, excepting perennially irrigated areas (like the Punjab and the irrigated deltas of the east coast), the need for hired labour for predominantly un-irrigated seasonal crops is confined to short periods. And, the very small farmers do not need such labour. Secondly, the wage in agriculture (which is often in practice lower than the minimum wage fixed by the government) is much less than the wage in non-farm casual works of various types. In perennially irrigated areas the problem of shortage of labour

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is less serious.(Look at the labour supply for sugarcane harvesting in Maharashtra: migrant labour from un-irrigated areas find work for almost six months in such fields).

We may not regret the decline in the number of people dependent on agriculture. But, the need for improvement in the income generated in the agricultural sector and hence in the per capita income in the sector is great. The rate of growth in total agricultural production has remained low all along. Till 1987-88 it was around 3 per cent a year. Then, after the sudden great increase in 1988-89 the rate of agricultural production has not been higher than what it was till 1987-

The effect of the Green Revolution brought home in 1966 has worked itself out. The basis of this revolution was the biological innovation of HYV wheat and paddy seeds and of hybrid millets. All these innovations had their origin outside India. And all these new varieties depended on availability of irrigation. The new seeds with the help of adequate moisture in the soil, could transform much larger quantities of plant nutrients (fertilizers) into higher grain yields. These varieties have worked in the irrigated regions of India, though not uniformly well, due to deficiencies in the method of water supply. There have been no such basic developments in regard to any other crops, either in India or abroad, since then. The repeated exhortations for a new green revolution by political leaders, from the President downwards, have led so far to nothing. In some states changes in the cultivation of the dominant crops are being labelled as green revolution. But such change takes place as a result of price changes and changes in the method of water supply, not because of any basic biological innovation. Briefly, there is no sign of any basic technological change about any crop.

Nevertheless, there is scope for improvement in yields in regard to many crops. In case of crops like rice and wheat in the areas where these are grown under un-irrigated conditions, the yields can improve with provision of irrigation. Vast rice growing areas in eastern India are without irrigation facilities. The Madagascar method of SRI paddy - another foreign technique of production, requires much less water and much less seed than the traditional method of irrigated paddy. Most pulses and oilseeds are grown under un-irrigated condition. If provided with two or three irrigations in the growing season, the yield can increase many fold. And the water needed for irrigating these crops is much less than what the normally irrigated cereals like rice and wheat need.

The problem facing the possibility of increased production of most crops to-day is supplementary irrigation. Except in limited areas like the Punjab, parts of Haryana and western UP and the major deltas of the east coast. only a small proportion of the agricultural lands in the rest of the country is irrigated. Except in the Gangetic and the Brahmaputra valley, the remaining areas of the country have limited sources of water for flow irrigation. In such situation, the flow water should be so distributed amongst different crops that the return from acre- (or hectare-) inch of water is the largest, Naturally, the return from different crops has to be calculated in value terms. Many studies have showed that the heavy water using crops in the country, like sugarcane and paddy, give far lower return per acre-inch of irrigation water than crops like pulses, oil seeds, and even cotton and horticultural crops like grapes and vegetables. But, it so happens that to-day the bulk - almost 80 per cent - of the irrigation water in such vast water-short regions is used for such low-return-to-unit-of-water crops like sugarcane and paddy. A rational allocation of flow irrigation water such that the different crops grown under it can maximise the return from water is necessary. This will result in more agricultural production and much greater income from agriculture, water to larger areas of land, stabler agriculture and even larger days of work in crop husbandry than is seen to-day under the present method of irrigation.

A question might be immediately raised: then why do farmers crave for irrigation water in theses flow irrigation systems for crops like sugarcane and rice? The reason is very simple. The quantity of water used to irrigate, for example, one acre of sugarcane can irrigate anything between 8 to 10 acres of pulses, oilseeds, cotton and millets. But most of the farmers growing an acre or two of sugarcane in a command area, do not have 8 to 10 (or 16 to 20) acres of land in that command area. So, in view of the limited land area of most farmers in the project area, they naturally prefer water for sugarcane. This is the reason for the difference between the national economic interest and the individual farmer's interest. To subserve the national interest water should be rationally distributed by the state.

But this does not mean that there should be no irrigated sugarcane or paddy in such areas. Indeed, it is both possible and desirable to grow these heavy water consuming crops in the command areas of flow irrigation projects by recycling the ground water under the command area. The first Irrigation Commission of Maharashtra in 1962 had indeed advocated such a policy. But it has not happened.

Water is becoming a very scarce commodity in our economy. Besides agriculture, industry as well as the growing number of people are demanding water in larger measure. The farmers are opposing this in most existing irrigation project areas. But no one seems concerned about economic use of irrigation water. Even before capital expensive drip irrigation is adopted, this rational economic use of water should be the first choice of method in the interest of greater agricultural production. Similarly, industry should also use water carefully. Indeed, recycling used water should be one of the obligatory requirements with industrial use. Households should also be charged at a much higher rate for using more water than the minimum needed for drinking, washing and other routine domestic use.

Rational economic use of irrigation water would lead to greater production of many agricultural commodities, but also economise in the use of water for the major cereals. To-day the government is raising the support prices of rice and wheat, often more than what the CACP recommends, in order to increase production of these crops and also to give a higher income to the farmers producing these crops. The rational use of water will lead to more appropriate production of these crops and a better international trade in these commodities. Our domestic production of wheat and rice leads to very large storages in normal years, larger than what is needed for the purpose. With open trade in such commodities, we can operate our buffer in a more rational manner. And the need to offer very high prices will be obviated. The inflationary pressure of these prices can be minimised.

We store very large quantities of wheat and rice. But the quality of our storage is very poor. The loss in storage has become a routine matter of bitter criticism. When India was a surplus producer of wheat in the 1920s, there was a serious proposal to construct large storage bins of the type in the USA. But soon our position changed. During the last four decades, with large buffer stocks, we should have constructed such storage bins, in which, besides protection from rain, we can make suitable provision of insecticides and pesticides to save the grains from spoilage. The sheer prevention of loss of grain in such arrangement will cover the entire cost of these storage bins.

A very widespread complaint of farmers all over the country is the very high price of farm inputs and a relatively lower price at which they have to sell the produce. The failure of the price support mechanism of the government in most states except the ones where very large amounts come to the market (for example, for wheat in north India, for rice in Punjab and in the Godavari-Krishna and the Cauveri deltas) is

responsible for the low price of the produce. In the major rice growing states like Chhatisgarh, Orissa, Bihar, Jharkhand, West Bengal and Assam the Food Corporation hardly operates. The result is, farmers are obliged to sell their produce at lower than the minimum support price. This is unfortunate. In the interest of greater production and fair treatment to farmers, the Food Corporation should have purchase centres in these regions where farmers can sell their produce at the minimum support prices announced.

As for rising costs of inputs, the CACP has to take regional prices into account to announce minimum support price. The further factor in this matter is the cost and quality of inputs. The farmers in many regions purchase "improved" seeds from the market, certified by the seed dealers. No wonder, not only the price is high; the quality is also often poor. The same about fertilizers. The entire agricultural extension service, built up by the state at one time, has completely collapsed in most states. The input dealers are the extension advisors. It is time the district agricultural officers are assigned the task of devoting the extensive farm lands of the government in the district to growing improved seeds (certified by the proper agency) for one crop or the other and selling these to farmers at the seed farm head. The agricultural officer's income should come from the sale of these seeds, without any cost to government. The officer can borrow the input costs from the bank and repay it from the sale proceeds. The price shall be the market price of the improved seed. This way the agricultural officers can do something useful without any cost to the government. They can advise the farmers on the method of cultivation of the crop, including the type and amount of fertilizer to be applied and the timing and quantum of irrigation, with the help of hand outs given with the seed.

These measures can help agricultural production grow at a steady rate. For basic technological development, it appears, we will have to depend on foreign research, since our domestic research efforts have, by and large, not delivered the goods. If the agricultural universities and research institutions develop any new varieties, this should be given to the district seed farms to grow and sell in the open market. Competition with the seed from multi-nationals, in this manner, can help our farmers.

The declining number of farmers would be one useful development for agriculture. This may attract and retain more interested persons in farming in the years to come, something that Mahadev Govind Ranade had hoped and pleaded for more than a century ago. In addition to technological developments, that is an important factor for sustained agricultural growth in years to come.

FACTORS DETERMINING CHOICE OF MODE OF EMPLOYMENT BY THE RURAL NON-FARM WORKERS: AN ANALYSIS OF FIELD SURVEY DATA FROM WEST BENGAL

S.K. Bhaumik

This paper analyses data collected through field surveys in West Bengal to understand the factors that determine the rural workers' choice of mode of employment in the non-farm sector. The paper also looks into employment and earnings levels of the non-farm workers under different modes of employment. The questions specifically addressed are: (i) What has been the degree of participation in the non-farm sector by the rural workers? (ii) What are important modes of employment for the rural non-farm workers? (iii) What are different activities/ sub-sectors in which the non-farm workers under different modes of employment are involved? (iv) What have been the 'intensity of employment' and 'earnings per worker' under different modes of employment in the non-farm sector? (v) What are main determinants of the rural non-farm workers' choice of mode of employment?

I. Introduction

The rural non-farm sector (RNFS) has been one of the most widely discussed subjects in the context of the recent discussions on rural development in the developing countries of Asia, Africa and Latin America.[1] Much of the interest in this sector has been fuelled by the hope that this sector can generate alternative employment/earning opportunities for the rural workers, and contribute towards reduction of rural unemployment and poverty. Indeed, the rural non-farm sector has already recorded a sizeable presence in many developing countries. Examining the data drawn from a wide range of developing countries, Haggblade, Hazell and Reardon [2008, 2010] observed that this sector alone accounts for 35 to 50 per cent of rural incomes across the developing world. As regards employment, it has been found that this sector accounts for about 30 per cent of 'full-time' rural employment in Asia and Latin America, 20 per cent in West Asia and North America and 10 per cent in Africa. However, inclusion of rural towns further raises the non-farm employment shares by an additional 10 to 15 per cent. Thus, the above-mentioned scholars concluded that "the rural non-farm economy has grown too large to ignore".

Nevertheless, some other scholars have been sceptical about the full potential of the non-farm sector to bring about substantial expansion of employment and earnings (and hence reduction of poverty) in rural areas.[2] Such scepticism stems from the fact that the rural non-farm sector has been highly heterogeneous. In any rural setting, it actually represents a wide spectrum of activities with different employment/income generating capacities and labour productivities [Lanjouw, 1999; Lanjouw and Lanjouw, 2001, Lanjouw and Murgai, 2009, Pp. 243-63]. As the rural workers vary in their capacities/abilities to access non-farm employment/earning opportunities of different types, the implications of the non-farm development for employment and earnings of the workers could not be discerned without looking into the types of activities in which the non-farm workers are engaged, and also identifying the factors that explain their differential access to various activities in the non-farm sector. It is thus

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suggested that the rural non-farm sector be studied from a disaggregated perspective, by breaking it down into some conceivable activities/ sub-sectors.

In this paper, we analyse data collected through field surveys in West Bengal to understand the factors that determine the rural workers' choice of mode of employment in the non-farm sector. We also look into employment and earnings levels of the non-farm workers under different modes of employment. The questions specifically addressed are: (i) What has been the extent (or degree) of participation in the non-farm sector by the rural workers? (ii) What are important modes of employment for the rural non-farm workers? (iii) What are different activities/ sub-sectors in which the non-farm workers under different modes of employment are involved? (iv) What have been the 'intensity of employment' and 'earnings per worker' under different modes of employment in the non-farm sector? (v) What are main determinants of the rural non-farm workers' choice of mode of employment?

This paper is divided into seven sections: Section II provides a brief description of study areas, data collection methodology and the concepts and definitions. Section III discusses the extent of participation in the non-farm sector by the rural workers in our survey areas. In Section IV, we examine the composition of rural non-farm workers in terms of their distribution under different modes of employment. This section also looks into 'sub-sectoral' distribution of the non-farm workers under different modes of employment. Section V examined 'intensity of employment' and 'earnings per non-farm worker' under different modes of employment. Some important factors governing the rural non-farm workers' choice of mode of employment have been identified in Section VI. The final Section VII provides a summary of main findings and policy implication.

II. Study Areas, Data and Methodology

This study is based on primary data collected from 12 villages in West Bengal. To collect primary data, we selected two districts: one from the list of districts with a larger percentage of total workers in non-farm occupations than the state average, and another from the list of districts with lower percentage of workers in non-farm occupations than the state average. The data on the number of workers and the percentage of workers in non-farm occupations were taken from the Census of 1991. Non-farm occupations meant all occupations excepting cultivators, agricultural labourers and persons working in live-stock rearing, forestry, hunting, plantations, orchards and other allied activities. The two districts selected were Hooghly and Cooch Behar; the first, with higher incidence of non-farm workers, is referred to as 'developed', and the other as 'backward'. The data presented in Table 1 show that while the incidence of rural non-farm workers (main plus marginal) was 25.87 per cent for the state of West Bengal in 1991, for Hooghly it was 33.34 per cent and for Cooch Behar 18.89 per cent. Although some increase in the incidence of rural non-farm workers is noticeable in both the districts in 2001, the former continued to have higher incidence as before. The dominant sectors were manufacture, trade & commerce, and services including public administration (see Table 1). This observation is also corroborated by the data from the Economic Census for the years 1998 and 2005 presented in Table 2. Of course, it is necessary to remember that the Economic Census counts only the self-employed and the regular salaried employees of the economic enterprises, and excludes the purely casual/contract labour employed. Apart from the intensity of non-farm employment, the sample districts also showed relative development and under-development in terms of a few other indicators listed in Table 3.

Table 1. Sectoral Distribution of Rural Workers (main + marginal) in Sample Districts and West Bengal

Sector	Year	Hooghly	Cooch Behar	West Bengal
(1)	(2)	(3)	(4)	(5)
Cultivators	1991	29.24	51.75	38.40
	2001	21.05	40.68	25.45
Agricultural labourers	1991	36.46	28.18	32.27
	2001	34.04	32.02	32.99
Livestock, forestry, fishing, hunting, plantations, orchards and other allied activities	1991	0.96	1.18	3.46
	2001	3.77	2.05	5.08
Mining and quarrying	1991	0.10	0.02	0.40
	2001	0.09	0.02	0.38
Manufacturing, processing, servicing and repairs	1991	14.71	6.52	10.77
	2001	17.89	8.36	15.13
Construction	1991	1.17	0.57	1.17
	2001	2.30	2.09	2.79
Trade and commerce	1991	7.43	4.60	5.64
	2001	9.03	5.69	7.53
Transport, storage and communications	1991	2.55	2.34	2.00
	2001	3.02	3.53	2.88
Services	1991	7.38	4.84	5.89
	2001	8.54	5.46	7.56
Farm	1991	66.66	81.11	74.13
	2001	58.86	74.75	63.53
Non-farm	1991	33.34	18.89	25.87
	2001	41.14	25.25	36.47

Source: Census of India, 1991 and 2001

Table 2. Distribution of Rural Non-farm Workers in Different Sectors in Sample Districts: Economic Census data

District	Sector	% of enterprises in		% of workers in	
		1998	2005	1998	2005
(1)	(2)	(3)	(4)	(5)	(6)
Hooghly	Mining	0.03	0.01	0.02	0.04
	Manufacturing	25.78	28.23	33.72	37.28
	Electricity, gas and water supply	0.38	0.17	0.53	0.17
	Construction	0.42	1.09	0.46	1.04
	Wholesale and retail trade	46.61	45.3	35.01	31.22
	Hotels and restaurants	3.68	3.17	2.85	2.45
	Transport, storage and communication	8.74	5.24	6.67	3.87
	Financial services, real estate, etc	2.31	1.58	2.78	1.92
	Public administration, etc	12.04	15.22	17.95	22
	All sectors	100	100	100	100
Cooch Behar	Mining	0.03	0	0.02	0
	Manufacturing	22.41	21.72	28.8	32.09
	Electricity, gas and water supply	0.06	0.08	0.06	0.11
	Construction	0.94	0.47	0.58	0.53
	Wholesale and retail trade	41.43	40.24	33.46	31.75
	Hotels and restaurants	3.98	3.82	4.41	3.69
	Transport, storage and communication	15.11	18.31	10.73	11.92
	Financial services, real estate, etc	1.57	0.66	1.76	0.78
	Public administration, etc	14.49	14.71	20.17	19.13
	All sectors	100	100	100	100

Source: Extracted from 'unit-level' *Economic Census* data for 1998 and 2005.

Table 3. Some Indicators of Socio-economic Characteristics of Sample Districts

Item	Year	Advanced District [Hooghly]	Backward District [Cooch Behar]	West Bengal State
(1)	(2)	(3)	(4)	(5)
(1 Per capita income at 1993-94 prices (in Rs.)	1999-00	9921	7326	9330
(2) % of rural population	2001	66.5	90.9	72
(3) Rural literacy rate	2001	71.5	65.2	64.1
(4) % of SC/ST population	2001	27.8	50.7	34.4
(5) % of holdings having operated area:				
Less than 2.50 acre	1995-96	81.5	69.8	76.4
2.50-4.99 acre		14.7	20.9	16.8
5.00 acre & above		3.9	9.4	6.8
(6) % of gross cropped area irrigated	1999-00	90.7	24.5	44.2*f*
(7) Fertiliser consumption (Kg./Hect.)	1999-00	223.5	123.2	121.8
(8) Rice Yield (Kg./Hect.)	1999-00	2740	1505	2237

Sources: (1) Government of West Bengal, *District Statistical Handbooks for Hooghly and Cooch Behar, 2004;* (2) Government of West Bengal, *Economic Survey* for various years; (3) Government of West Bengal, *Agricultural Census*, 1995-96; and (4) CMIE, *Agriculture*, March, 2006.

For purposes of the survey, three blocks were randomly selected from each district. Further, two villages were randomly selected from each block, giving six villages from each district and 12 villages in all. A complete list of households in each village was prepared and the households were distributed into the following four operational holding (in acres) categories: (i) 0.00; (ii) 0.01 - 0.99; (iii) 1.00 - 2.49; and (iv) 2.50 & above. Fifty households from each village were randomly selected, with probability proportional to size of the respective category or stratum. Thus, we have a sample of 600 households drawn from the 12 villages in two sample districts.

The sample households contained 908 and 880 workers in the 'advanced' and 'backward' district, respectively. The workers were either main or marginal workers, following the definition of the Census. Out of these workers 421 in the 'advanced district' and 335 in the 'backward district' were engaged exclusively in the non-farm sector. In this paper, our primary focus is on these workers.[3] The percentages of workers engaged in both farm and non-farm sectors were 12.9 and 14.7 in the advanced and backward regions respectively.

A 'one-shot survey' (meaning, collecting information for the whole year in one visit to the household) was not considered suitable for a study like this, primarily because of wide seasonality and informality of employment/earnings in the rural areas. Therefore, each sample household was visited four times, once at the end of each quarter of the survey year. This helped minimise the error due to 'memory lapse' by the respondents. The questionnaire had provision to record, *inter alia*, the quarterly information on employment and earnings of the workers in the sample households.

Following usual convention, the non-farm sector workers have been categorised into three groups in accordance with their modes of employment. These are: (i) 'regular salary/wage workers', (ii) 'self-employed workers' and (iii) 'casual wage labourers'. The 'regular salary/wage workers' include the salaried private/public sector employees, and those who worked in others' non-farm enterprises and received salary or wages on a regular basis, (*i.e.*, not on the basis of daily or periodic renewal of work contract). The 'self-employed workers' are those who operated their enterprises on their own account. This sub-sector typically represents a wide spectrum of activities, ranging from residual, last-resort, 'push' activities such as *bidi* making, small-scale retailing and so on to high return, more sophisticated, activities like business, medical practice, and so on. Thus, it would not be an invalid conjecture that, unlike the 'regular salary/wage workers', the 'self-employed workers' do not always enjoy a steady flow of employment and high incomes. The 'casual wage labourers' in the non-farm sector are engaged in others' non-farm enterprises and in return received wages according to the terms of the daily or periodic work contract.

In this study, the employment days of the non-farm workers refer to the 'actual days of work' put in by them in various non-farm activities. Considering the 'actual days of work', rather than 'standardised man-days', helps to properly appreciate the degree of involvement in the non-farm sector by the rural workers.[4] As regards earnings of the 'regular salary/wage employed' and 'casual wage labourers', we considered 'income net of transport/commuting expenses'. The earnings of the 'self-employed worker' represents the 'net income', which is the difference between gross income from self-employed activity and the costs/expenses incurred (excluding family labour). The earnings of multiple family members in an enterprise have been calculated by dividing total earnings from the enterprise among them in proportion to their days of employment.

III. Participation in the Non-farm Sector by the Rural Workers

How important were non-farm workers in the total occupational pattern in the two districts?

(a) The data in Table 4 show that the number of workers in the advanced district was higher than that in the backward district, 908 against 880. This could be due to better agriculture as well as greater opportunity for non-farm work amongst the male workers in particular in the developed region. More noticeable is the fact that the number and proportion of male workers was much higher in the developed district and the number as well as the proportion of female workers sharply declined. Development seems to have led to decline in female participation in the labour force.

(b) The proportion of non-farm workers in the total labour force was larger in the advanced district: 46 per cent as against 38 per cent in the backward district.[5] The number of female non-farm workers was the same in both the districts, though their proportion amongst all female workers was higher in the developed district. This seems to be mainly because female workers were much smaller in number in agriculture in the developed district than in the backward one. This appears to be mainly due to the very much larger proportion of SC and ST households in the backward district compared to the advanced, and has possibly little to do with developed or less developed agriculture. Female participation in the labour force is always smaller amongst the non-SC/ST households.

(c) In both the districts the bulk of the non-farm workers came from landless and very small landholding households.

Table 4. Percentage of Rural Non-farm Workers in Sample Regions

Region	Size Group of Operational Holdings (in acres)	Number of households		Total workers* ('main' & 'marginal')			Percentage of non-farm workers ('main' & 'marginal') to total workers			Percentage of 'main' workers among non-farm workers		
				Male	Female	Person	Male	Female	Person	Male	Female	Person
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Advanced	0.00	63	(21.00)	120	39	159	67.39	44.74	60.77	87.80	91.70	90.04
	0.01-0.99	108	(36.00)	296	39	335	48.47	28.13	45.61	75.28	91.17	77.22
	1.00-2.49	86	(28.67)	246	10	256	40.31	50.00	40.50	86.72	100.00	87.77
	2.50-4.99	43	(14.34)	152	6	158	41.75	66.67	42.59	85.10	100.00	86.19
	All sizes	300	(100.00)	814	94	908	47.27	40.00	46.38	82.90	93.09	84.07
Backward	0.00	53	(17.67)	97	30	127	63.51	20.69	51.46	82.78	96.67	87.22
	0.01-0.99	119	(39.67)	290	83	373	54.34	30.99	47.54	70.44	85.54	75.00
	1.00-2.49	78	(26.00)	204	38	242	31.76	10.53	27.27	89.53	100.00	93.94
	2.50-4.99	50	(16.27)	123	15	138	25.32	21.43	24.73	86.71	93.33	87.90
	All sizes	300	(100.00)	714	166	880	42.97	22.44	38.07	80.50	93.98	84.17

Source: Field Survey
Notes: (i) * Total workers = Farm workers + Non-farm workers; and
(ii) Figures in brackets are percentages to total households.

Some select indicators of the socio-economic background of the non-farm workers in the survey areas are presented in Table 5. It emerges that the males dominated the pool of non-farm workers. In terms of education, operated land area and asset ownership, the non-farm workers in the 'advanced district' enjoyed a better position compared to their counterparts in the 'backward district'. Further, among the non-farm workers, those going in for 'casual wage employment' came mainly from landless or very small landholding households.

Table 5. Some Indicators of Socio-economic Background of the Non-farm Workers

Region	Category of non-farm workers	% of SC/ST workers	% of male workers	Average education (years of schooling)	Average operated area (in acres)	Average value of non-farm assets (in '000 Rs.)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Advanced	Regular salaried	16.67	88.89	10.76	1.69	20.16
	Self-employed	14.11	90.8	7.39	1.4	22.75
	Casual wage	35.77	89.78	5.15	0.77	2.55
	All workers	22.88	90.11	7.04	1.2	14.8
Backward	Regular salaried	56.25	100	9.13	2.13	2.15
	Self-employed	46.27	95.52	4.69	1.04	2.34
	Casual wage	52.27	78.03	3.58	0.89	0.68
	All workers	49.65	87.59	4.42	1.03	1.55

Source: Field Survey

Incidence of 'Main Workers' Among Non-farm Workers

We may also look into the incidence of 'main workers' among the non-farm workers in terms of same Table 4 It would provide an idea about the degree of marginalisation of the non-farm employment in our study areas.[6] It appears that nearly four-fifths of the non-farm workers in our study areas pursued non-farm activities on a regular basis. This is due to their engagement in traditional occupations. Another point to note here is that the incidence of 'main' workers among the female non-farm workers has been relatively greater compared to the male non-farm workers. While 93 to 94 per cent of the female non-farm workers appeared to be the 'main' workers in our study regions, the corresponding figure for the male non-farm workers varied between 81 and 83 per cent.[7] However, the incidence of 'main' workers among the non-farm workers does not hold any definitive relationship with farm size.

IV. Modes of Employment by the Rural Non-farm Workers

We now examine the modes of employment by the rural main non-farm workers in our study regions. As mentioned above, we categorised the rural non-farm workers of our study regions into three groups: (i) 'regular salary/wage workers', (ii) 'self-employed workers', and (iii) 'casual wage labourers'. Table 6 presents data on percentage distribution of rural main non-farm workers under the three broad employment categories. It appears that among the rural non-farm workers, the most important mode of employment was 'self-employment', followed by 'casual wage labour' and then 'regular salary/wage employment'.[8] Table 6 shows that of all non-farm sector workers, nearly 46 and 48 per cent have been engaged in 'self-employment' in the 'advanced' and 'backward' regions, respectively. The percentages of the non-farm workers in 'casual wage employment' in the 'advanced' and 'backward' regions are found to be 39 and 47 per cent, respectively. The percentages of non-farm workers engaged in 'regular salary/wage

employment' are much smaller, 15.25 and 5.67 per cent in the developed and backward regions, respectively.

Female non-farm workers show greater variation in the mode of employment between the developed and backward regions. While more than half the female workers in the developed district were engaged either on salary/wages or in self-employment, the overwhelming proportion of female workers in the backward district consisted of casual wage earners.

Table 6. Percentage Distribution of Rural Non-farm Workers by Modes of Employment

Region	Size of Workers	Size Group of Operational Holdings (in acres)	Number of 'main' non-farm workers	Percentage of non-farm workers in		
				Regular salary/ wage employment	Self-employment	Casual wage employment
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Advanced	Male	0.00	71	9.86	36.62	53.52
		0.01-0.99	108	13.89	44.44	41.67
		1.00-2.49	86	13.95	48.84	37.21
		2.50 & above	54	29.17	54.17	16.67
		All sizes	319	15.05	46.39	38.56
	Female	0.00	16	6.25	31.25	62.50
		0.01-0.99	10	20.00	50.00	30.00
		1.00-2.49	5	40.00	60.00	-
		2.50 & above	4	25.00	50.00	25.00
		All sizes	35	17.14	42.86	40.00
	Person	0.00	87	9.20	35.63	55.17
		0.01-0.99	118	14.41	44.92	40.68
		1.00-2.49	91	15.38	49.45	35.16
		2.50 & above	58	28.85	53.85	17.31
		All sizes	354	15.25	46.05	38.70
Backward	Male	0.00	51	0.00	45.10	54.90
		0.01-0.99	111	4.50	56.76	38.74
		1.00-2.49	58	8.62	46.55	44.83
		2.50 & above	27	26.09	47.83	26.09
		All sizes	247	6.48	51.82	41.70
	Female	0.00	6	-	0.00	100.00
		0.01-0.99	22	-	18.18	81.82
		1.00-2.49	4	-	50.00	50.00
		2.50 & above	3	-	0.00	100.00
		All sizes	35	-	17.14	82.86
	Person	0.00	57	-	40.35	59.65
		0.01-0.99	133	3.76	50.38	45.86
		1.00-2.49	62	8.06	46.77	45.16
		2.50 & above	30	23.08	42.31	34.62
		All sizes	282	5.67	47.52	46.81

Source: Field Survey

It also appears from Table 6 that most of the regular salary/wage earning workers came from better landholding households. Similarly, most of the self employed workers had also middle or larger sized land holdings. The casual wage earners came mainly from the landless and very small landholding households.

Composition of Non-farm Workers under Different Modes of Employment

The above discussion reveals that the incidence of 'regular salary/wage workers' among the non-farm workers has been very low in our study regions and the vast majority of the non-farm workers are engaged either in 'self-employment' or 'casual wage employment'. The workers engaged in 'self-employment' and 'casual wage employment' together account for more than 85 and 94 per cent of all non-farm workers in the 'advanced' and 'backward' regions, respectively. However, as the sectors of 'regular employment', 'self-employment' and 'casual wage employment' represent a variety of activities, it would be useful to look into the composition of workers involved in these sectors at a disaggregated level. For this purpose, we follow the classificatory scheme of the National Industrial Classification 1998 (NIC-98). Following 2-digit division of NIC-98, we computed 'sub-sectoral' distribution (percentage) of the non-farm workers under different modes of employment in our study regions, advanced and backward. Table 7 provides relevant information to this effect.

Regular Non-farm Workers

It is evident from Table 7 that majority of the 'regular non-farm workers' have been employed in 'public administration' in both our study regions. In the 'advanced region', the share of such workers was 46.30 per cent, while in the 'backward region' it was 56.25 per cent. Apart from this, other important activities/ sub-sectors engaging 'regular non-farm workers' were 'other business activities' in the 'advanced region', and 'manufacture of food products and beverages' and 'education' in the 'backward region'. It also appears from Table 7 that, in the 'advanced region', 'public administration' and 'other business activities' together engaged more than 85 per cent of male 'regular non-farm workers'. On the other hand, for the female workers, the most important in the 'advanced region' has been 'health and social work', which is followed by 'public administration'. In the 'backward region', while the dominance of 'public administration' continues for the male 'regular non-farm workers', no female non-farm worker was employed on a regular basis in this region.

Non-farm Self-employed Workers

The 'self-employment' sector is much more diversified compared to 'regular employment' sector. This is clear from the fact there are as many as 15 sub-sectors/ activities in the 'advanced region' and 13 sub-sectors in the 'backward region' (following the 2-digit division of NIC-98) that absorbed non-farm self-employed workers (the corresponding numbers for the 'regular employment' sector in the two regions were only 8 and 6, respectively).

However, as expected, not all these sub-sectors/ activities have been equally important from the point of view of absorbing the 'self-employed workers'. In the 'advanced region', the most important sub-sector to absorb 'self-employed workers' (male and female combined) of the non-farm sector was 'retail trade' (absorbing 28.22 per cent of them), which is followed by 'manufacture of food products and beverages' (15.34 per cent), 'land transport' (13.50 per cent) and 'education' (12.88 per cent). These four sub-sectors together accounted for nearly 70 per cent of all non-farm 'self-employed workers' in the 'advanced region'. The picture is more or less similar in the 'backward region' where activities/ sub-sectors like 'retail trade' (45.52 per cent), 'land transport' (24.63), 'manufacture of food products and beverages' (7.46 per cent) and 'wholesale trade' (7.46 per cent) together accounted for 85 per cent of all non-farm 'self-employed workers'.

Table 7B.1. Percentage Distribution of Rural Non-Farm Workers by Modes of Employment in Different Sub-sectors (2-digit division of NIC-1998): Advanced Region

NIC-1998 Division	Description	Self-employed workers			Regular salary/wage employees			Casual wage labourers			All non-farm workers		
		Male	Female	Person	Male	Female	Person	Male	Female	Person	Male	Female	Person
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
15	Manufacture of food products and beverages	14.19	26.67	15.34				0.81		0.73	6.9	11.43	7.34
16	Manufacture of tobacco products								7.14	0.73		2.86	0.28
17	Manufacture of textiles	2.7	6.67	3.07				4.88	57.14	10.22	3.13	25.71	5.37
20	Manufacture of wood and wood products	3.38		3.07							1.57		1.41
21	Manufacture of paper and paper products							0.81		0.73	0.31		0.28
26	Manufacture of other non-metallic mineral products	4.73	20	6.13				4.07		3.65	3.76	8.57	4.24
27	Manufacture of basic metals							1.63		1.46	0.63		0.56
28	Manufacture of fabricated metal products, except machinery & equip							3.25		2.92	1.25		1.13
29	Manufacture of machinery and equipment (nec)	5.41		4.91	2.08		1.85	3.25		2.92	4.08		3.67
32	Manufacture of radio, television and communication equipment												
34	Manufacture of motor vehicles, trailers and semi-trailers				4.17		3.7				0.63		0.56
36	Manufacture of furniture	2.03		1.84	4.17		3.7	26.02		23.36	11.6		10.45
45	Construction							20.33	14.29	19.71	7.84	5.71	7.63
51	Wholesale trade	3.38		3.07							1.57		1.41
52	Retail trade	29.73	13.33	28.22				13.82		12.41	19.12	5.71	17.8
55	Hotels and restaurants												
60	Land transport	14.86		13.5				6.5		5.84	9.4		8.47
63	Supporting and auxiliary transport activities							6.5		5.84	2.51		2.26
64	Post and telecommunication												
66	Insurance and pension funding	1.35		1.23							0.63		0.56
74	Other business activities	1.35		1.23	37.5		33.33	3.25		2.92	7.52		6.78
75	Public administration				47.92	33.33	46.3				7.21	5.71	7.06
80	Education	10.81	33.33	12.88	2.08		1.85				5.33	14.29	6.21
85	Health and social work	0.68		0.61		66.67	7.41				0.31	11.43	1.41
92	Recreational, cultural and sporting activities	2.03		1.84				0.81		0.73	1.25		1.13
93	Other service activities	3.38		3.07				0.81		0.73	1.88		1.69
95	Private households with employed persons				2.08		1.85	3.25	21.43	5.11	1.57	8.57	2.26
		(148)	(15)	(163)	(48)	(6)	(54)	(123)	(14)	(137)	(319)	(35)	(354)

Note: Figures in parentheses are total number of workers.
Source: Field Survey

Table 7B.2. Percentage Distribution of Rural Non-Farm Workers by Modes of Employment in Different Sub-sectors (2-digit division of NIC-1998): Backward Region

NIC-1998 Division	Description	Self-employed workers			Regular salary/wage employees			Casual wage labourers			All non-farm workers		
		Male	Female	Person	Male	Female	Person	Male	Female	Person	Male	Female	Person
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
15	Manufacture of food products and beverages	4.69	66.67	7.46	12.5		12.5				3.24	11.43	4.26
16	Manufacture of tobacco products	1.56		1.49				2.91	79.31	19.7	2.02	65.71	9.93
17	Manufacture of textiles	1.56		1.49				4.85		3.79	2.83		2.48
20	Manufacture of wood and wood products							0.97		0.76	0.4		0.35
21	Manufacture of paper and paper products												
26	Manufacture of other non-metallic mineral products							2.91		2.27	1.21		1.06
27	Manufacture of basic metals												
28	Manufacture of fabricated metal products, except machinery & equip												
29	Manufacture of machinery and equipment (nec)				6.25		6.25	2.91		2.27	1.62		1.42
32	Manufacture of radio, television and communication equipment							0.97		0.76	0.4		0.35
34	Manufacture of motor vehicles, trailers and semi-trailers												
36	Manufacture of furniture							13.59		10.61	5.67		4.96
45	Construction	2.34		2.24				32.04		25	14.57		12.77
51	Wholesale trade	7.81		7.46							4.05		3.55
52	Retail trade	46.88	16.67	45.52	6.25		6.25	7.77		6.06	27.94	2.86	24.82
55	Hotels and restaurants							0.97		0.76	0.4		0.35
60	Land transport	25.78		24.63				20.39		15.91	21.86		19.15
63	Supporting and auxiliary transport activities							1.94	3.45	2.27	0.81	2.86	1.06
64	Post and telecommunication								3.45	0.76		2.86	0.35
66	Insurance and pension funding	1.56		1.49							0.81		0.71
74	Other business activities	0.78		0.75				2.91		2.27	1.62		1.42
75	Public administration				56.25		56.25				3.64		3.19
80	Education	1.56	16.67	2.24	12.5		12.5				1.62	2.86	1.77
85	Health and social work	1.56		1.49							0.81		0.71
92	Recreational, cultural and sporting activities	0.78		0.75				0.97		0.76	0.81		0.71
93	Other service activities	3.13		2.99				1.94		1.52	2.43		2.13
95	Private households with employed persons				6.25		6.25	1.94	13.79	4.55	1.21	11.43	2.48
		(128)	(6)	(134)	(16)	(0)	(16)	(103)	(29)	(132)	(247)	(35)	(282)

Note: Figures in parentheses are total number of workers.
Source: Field Survey

The structure of 'self-employment sector' also varied between the male and female workers. Thus, for male workers, while there were as many as 15 sub-sectors within the 'self-employment sector' in the 'advanced region' and 13 sub-sectors in the 'backward region', for female workers, there were only 5 and 3 sub-sectors in the two regions. Table 7 also shows that, for the male workers, in the 'advanced region', the most important sub-sector within the 'self-employment sector' was 'retail trade' (absorbing 29.73 per cent of male 'self-employed workers'), followed by 'manufacture of food products and beverages' (14.19 per cent), 'land transport' (14.86 per cent) and 'education' (10.81 per cent). On the other hand, for female workers, the most important sub-sector within the 'self-employment sector', in the 'advanced region', was 'education' (absorbing 33.33 per cent of them), followed by 'manufacture of food products and beverages' (26.67 per cent), 'manufacture of other non-metallic mineral products' (20 per cent) and 'retail trade' (13.33 per cent).

The dominance of 'retail trade' continues for the male 'self-employed workers' in the 'backward region' as this sub-sector alone accounts for nearly 47 per cent of them. Other important sub-sectors for male 'self-employed workers' in this region have been 'land transport' (25.78 per cent), 'wholesale trade' (7.81 per cent) and 'manufacture of food products and beverages' (4.69 per cent). For female 'self-employed workers', in the 'backward region', most important has been 'manufacture of food products and beverages' (66.67 per cent), which is followed by 'retail trade' (16.67 per cent) and 'education' (16.67 per cent).

It is interesting to note that the relatively more backward region has a much larger proportion of self-employed workers in retail trade and local transport, while in the relatively advanced region the proportion is higher in retail food preparation (tea shops) and in education (private tuition), next only to retail trade. This is possibly due to the decline in land holdings leading to search for alternative earning opportunities and growing demand for such services following development.

Non-farm Casual Wage Workers

The non-farm 'casual wage workers' also participated in a diverse array of activities. There were 17 activities/ sub-sectors, in both our study regions, in which the non-farm 'casual wage workers' (persons) participated. However, as in the case of 'self-employment' sector, not all of those are equally important. In the 'advanced region', 'manufacture of furniture' (23.36 per cent), 'construction' (19.71 per cent), 'retail trade' (12.41 per cent), 'manufacture of textiles' (10.22 per cent), 'land transport' (5.84 per cent), 'supporting and auxiliary transport activities' (5.84 per cent), and 'private households with employed persons' (domestic servants) (5.11 per cent) together absorbed nearly 83 per cent of the non-farm 'casual wage workers'. Similarly, in the 'backward region', 81 per cent of the 'casual wage workers' got absorbed in seven sub-sectors which are 'construction' (25.00 per cent), 'manufacture of tobacco products' (19.70 per cent), 'land transport' (15.91 per cent), 'manufacture of furniture' (10.61 per cent), 'retail trade' (6.06 per cent), 'private households with employed persons' (4.55 per cent) and 'manufacture of textiles' (3.79 per cent).

It is also noticeable that the male 'casual wage workers' participated in more diverse activities compared to their female counterparts. Table 7 shows that, in both the regions, while there were as many as 17 different sub-sectors in which the male 'casual wage workers' participated, the female 'casual wage workers' participated in four sub-sectors only. For male 'casual wage workers', in the 'advanced region', the most important sub-sectors have been 'manufacture of furniture' (absorbing 26.02 per cent of them), 'construction' (20.33 per cent) and 'retail trade' (13.82 per cent).

In the 'backward region', apart from these activities, 'land transport' has been important for the male 'casual wage workers'.

On the other hand, for female 'casual wage workers', in the 'advanced region', 'manufacture of textiles' (representing 57.14 per cent of them) and 'private households with employed persons' (21.43 per cent) have been important. In the 'backward region', 'manufacture of tobacco products' alone accounted for 79.31 per cent of female 'casual wage workers' while 13.79 per cent of them got absorbed as 'private households with employed persons'.

All Non-farm workers

Table 7 also provides information on sub-sectoral distribution of all non-farm workers in our study regions. Following 2-digit divisions of NIC-98, we found 24 activities/ sub-sectors within the non-farm sector of our 'advanced region' and 23 sub-sectors in the 'backward region' which engaged the non-farm workers. Among all these sub-sectors, 'retail trade' has been most important in both the regions from the point of view of absorbing rural non-farm workers. Some other sub-sectors to absorb substantial number of non-farm workers are 'manufacture of furniture', 'land transport', 'construction', 'manufacture of food products and beverages' and 'public administration'. These six sub-sectors together accounted for nearly 52 per cent of all (male + female) non-farm workers in the advanced region and 69 per cent in backward region. Another important sub-sector, in the backward region has been 'manufacture of tobacco products' that accounted for nearly one-tenth of all non-farm workers.

In both the regions, the number of sub-sectors in which male non-farm workers participated is greater compared to female non-farm workers. Table 7 shows that while the male non-farm workers have been engaged in as many as 23 different activities/ sub-sectors in the 'advanced region' and 22 activities in the 'backward region', the female non-farm workers participated in only 10 and 7 different activities in the two regions, respectively. However, as expected, all such activities/ sub-sectors have not been equally important. It is found that, for the male workers, 'retail trade' has been most important among all activities, in both the regions. This sub-sector alone represented 19.12 per cent of male non-farm workers in the 'advanced region' and 27.94 per cent in the 'backward region'. Apart from this sub-sector, 'manufacture of furniture', 'land transport', 'construction', and 'manufacture of food products and beverages' have been important for the male non-farm workers. These sub-sectors along with 'retail trade' accounted for nearly 55 and 73 per cent of male non-farm workers in the advanced and backward region, respectively. On the other hand, for the female non-farm workers, most important have been 'manufacture of textiles' in the advanced region (accounting for nearly one-fourth of them) and 'manufacture of tobacco products' in the backward region (representing nearly two-thirds of female non-farm workers). Other important sub-sectors for female non-farm workers have been 'education', 'manufacture of food products and beverages' and 'health and social work' in the 'advanced region', and 'manufacture of food products and beverages' and 'private households with employed persons' in the 'backward region'.

V. Intensity of Employment and Earnings per Rural Non-farm Worker

In this section, we look into the 'intensity of employment' and 'earnings per rural non-farm worker' under different modes of employment. Specifically, our objective is to see if there is any variation in 'employment intensity' and 'earnings per worker' following changes in modes of employment by the workers in the non-farm sector.

Employment Intensity

Table 8 presents data on 'yearly employment days' and 'earnings per rural non-farm worker' under different modes of employment in two of our study regions - 'advanced' and 'backward'. As regards 'yearly employment days per worker' or 'intensity of employment', the following points need to be noted, in particular:

(a) The 'employment intensity' for the non-farm workers in the 'advanced region' is greater compared to their brethrens in the 'backward region'. This is true irrespective of the sex of the workers. Considering the male and female workers together, 'employment days per non-farm worker' is found to be 241 during the year of our survey in the 'advanced region' as against 213 in the 'backward region'.

Table 8. Intensity of Employment and Earnings Per Rural Non-farm Worker under Different Modes of Employment

Region	Mode of employment	Sex of workers	No. of workers	Annual Employment Days Per Worker	Annual Earnings Per Worker [in '000 Rs.]	Earning Per Day (in Rs.)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Advanced	Regular salaried employment	Male	48	282.6	32.14	113.73
		Female	6	284.0	18.00	63.34
		Person	54	282.8	30.57	108.10
	Self-employment	Male	148	248.1	14.81	59.69
		Female	15	236.9	5.52	23.29
		Person	163	247.1	13.96	56.48
	Wage labour	Male	123	211.0	9.43	44.69
		Female	14	271.2	4.11	15.14
		Person	137	217.2	8.89	40.92
	All non-farm workers	Male	319	239.0	12.34	51.64
		Female	35	258.7	7.88	30.46
		Person	354	241.0	11.90	49.39
Backward	Regular salaried employment	Male	16	280.9	40.77	145.12
		Female	0	-	-	-
		Person	16	280.9	40.77	145.12
	Self-employment	Male	128	209.8	9.44	44.98
		Female	6	141.7	2.45	17.33
		Person	134	206.8	9.12	44.13
	Wage labour	Male	103	204.9	8.54	41.67
		Female	29	232.8	3.17	13.60
		Person	132	211.0	7.36	34.86
	All non-farm workers	Male	247	212.1	11.08	52.24
		Female	35	217.2	3.04	14.01
		Person	282	212.7	10.08	47.40

Source: Field Survey

(b) The 'intensity of employment' of the non-farm workers varies in response to their modes of employment. When considered for all (male plus female) workers together, in the 'advanced region', the 'intensity of employment' appears to be the highest in the case of 'regular salary/wage workers' (283 days), followed by 'self-employed workers' (247 days) and 'casual wage labourers' (217 days). In the 'backward region', although the 'intensity of employment' continues to be the highest in the case of 'regular salary/wage workers' (281 days), the 'employment intensity' for the 'casual wage labourers' (211 days) is slightly greater than that of the 'self-employed workers' (207 days).

(c) In both the regions, the female non-farm workers have higher 'intensity of employment' compared to the male non-farm workers. This is primarily because of their greater involvement in 'casual wage employment'. As shown in Table 8, in both the regions, 'employment intensity' is much higher in the case of female non-farm workers engaged in 'casual wage employment' compared to the male non-farm workers in 'casual wage employment'.

Annual Earnings per Worker

As regards 'annual earnings per worker', it is observed that the non-farm workers in the 'advanced region' enjoyed a superior position compared to the non-farm workers in the 'backward region'. Table 8 shows that, while an average non-farm worker in the 'advanced region' had 'annual earnings' of 11.90 thousand rupees only, the same in the 'backward region' is found to be 10.08 thousand rupees only. As expected, among the non-farm workers, those engaged in 'regular salary/wage employment' earn much higher amounts annually compared to those in 'self-employment' and 'casual wage employment'. This is true irrespective of the sex of workers and the region considered. Considering the male and female workers together, in the 'advanced region', it is found that while the non-farm worker in 'regular salary/wage employment' recorded an earning of 30.57 thousand rupees in the year of our survey, the 'annual earnings' of the 'self-employed worker' and 'casual wage labourer' turned out to be only 13.96 and 8.89 thousand rupees, respectively. In the 'backward region', the annual earnings per worker turned out to be 40.77, 9.12 and 7.36 thousand rupees for the 'regular salary/wage workers', 'self-employed workers' and 'casual wage labourers', respectively.[9]

It is also found that the male non-farm workers recorded substantially higher 'annual earnings' compared to their female counterparts. Table 8 shows that while the male non-farm worker, in the 'advanced region', earned 12.34 thousand rupees annually, the corresponding figure for the female non-farm worker has been 7.88 thousand rupees only. In the 'backward region', the 'annual earnings' per male non-farm worker has been 11.08 thousand rupees while the same for the female non-farm worker has been 3.04 thousand rupees only. This superiority of the male non-farm workers in terms of 'annual earnings per worker' is visible even when we consider the non-farm workers under different modes of employment.

Per Day Earning

The 'per day earning' of the rural non-farm workers also varied substantially in terms of mode of employment, sex of workers, and region considered. In the 'advanced region', on average, the 'per day earning' of the rural non-farm worker is found to be Rs. 49.39 , which is Rs. 47.40 only in the 'backward region' (Table 8). In both the regions, in terms of 'per day earning', 'regular salary/wage employment' comes first, followed by 'self-employment' and 'casual wage

employment'. The superiority of 'regular salary/wage employment' as against 'self-employment' and 'casual wage employment' on the basis of 'per day earning' is clearly established even when we consider separately for the male and female workers. It needs to be admitted here that not many of the non-farm workers have been fortunate to get absorbed in 'regular salary/wage employment' in our study regions. However, even those engaged in 'self-employment' benefited from higher 'per day earning' in comparison to those involved in 'casual wage employment'. Another noteworthy point is that, in both the regions, 'per day earning' of the female non-farm worker has been substantially lower compared to the same for the male non-farm worker. This is true irrespective of the mode of employment of the non-farm workers. Thus, the female non-farm workers in all the categories, *viz.*, 'regular salary/wage employment', 'self-employment' and 'casual wage employment', earned much less per day compared to their male counterparts in both our study regions.

Employment and Earnings of the Non-farm Workers in Different Sub-sectors

We have also computed annual employment days and earnings of the non-farm workers belonging to different sub-sectors (2-digit division of NIC-98) in two of our survey regions.[10] Such information for the 'advanced region', presented in Table 9A, show that the activities/ sub-sectors that absorbed majority of the non-farm workers are not necessarily those which recorded high 'employment intensity' and 'earning per worker'. Thus, for male non-farm workers in the 'advanced region', the most employment-intensive sub-sector has been 'manufacture of basic metal' which absorbed a mere 0.63 per cent of them. Similarly, for female workers, 'public administration' turned out to be most employment-intensive which absorbed only about 6 per cent of them. It is also to be noted that, both for male and female workers, 'public administration' appeared to be most 'productive' (on the basis of 'per day earning') in the 'advanced region'. On the other hand, 'retail trade' and 'manufacture of textiles' which absorbed highest percentage male and female non-farm workers respectively are found to have much lower 'per day earning'.

The observations with regard to employment/earnings of the non-farm workers belonging to different sub-sectors in the 'backward region' (Table 9B) are broadly the same as those made for the 'advanced region'. For the male non-farm workers in this region, while 'employment-intensity' has been the highest in 'health and social work', it accounted for only 0.81 per cent of those workers. Similarly, for female non-farm workers, only 2.96 per cent got absorbed in 'education' that recorded highest employment-intensity. It also needs to be mentioned that 'retail trade' and 'land transport', which are most important sub-sectors from the point of view of absorbing male non-farm workers in the backward region, recorded 'per day earning' which is about one-fourth of 'per day earning' recorded in 'public administration' (where 'employment-intensity' has been low). In the same way, 'manufacture of tobacco products' that absorbed as high as two-thirds of female non-farm workers recorded lowest value of 'per day earning'.

On the whole, it appears that majority of the non-farm workers (both male and female) in our study regions have been engaged in activities/ sub-sectors that fetched very low earnings for them. More productive activities that recorded high 'earning per worker' failed to absorb many rural workers compelling them to get involved in 'less-productive' activities for the sake of survival. This lends some support to the hypothesis of 'distress-driven diversification' by the rural workers in the context of our study areas.

Table 9A. Annual Employment Days and Earnings Per Rural Non-Farm Worker in Different Sub-sectors (2-digit division of NIC-1998): Advanced Region

NIC-2008 Division	Description	Male				Female				Person			
		No. of non-farm workers	Per worker		Per day earnings (Rs.)	No. of non-farm workers	Per worker		Per day earnings (Rs.)	No. of non-farm workers	Per worker		Per day earnings (Rs.)
			Annual employ-ment days	Annual earnings ('000 Rs.)			Annual employ-ment days	Annual earnings ('000 Rs.)			Annual employ-ment days	Annual earnings ('000 Rs.)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
15	Manufacture of food products and beverages	22	306	22.02	72.02	4	250	6.99	27.97	26	297	19.71	66.32
16	Manufacture of tobacco products					1	232	5.55	23.94	1	232	5.55	23.94
17	Manufacture of textiles	10	274	11.20	40.95	9	291	5.64	19.38	19	282	8.57	30.40
20	Manufacture of wood and wood products	5	185	4.22	22.79					5	185	4.22	22.79
21	Manufacture of paper and paper products	1	144	4.54	31.50					1	144	4.54	31.50
26	Manufacture of other non-metallic mineral prod-ucts	12	135	4.28	31.65	3	263	8.95	34.02	15	161	5.21	32.42
27	Manufacture of basic metals	2	360**	14.97	41.58					2	360**	14.97	41.58
28	Manufacture of fabricated metal products, except machinery & equip	4	223	12.86	57.65					4	223	12.86	57.65
29	Manufacture of machinery and equipment (nec)	13	246	9.11	37.01					13	246	9.11	37.01
32	Manufacture of radio, television and communica-tion equipment												
34	Manufacture of motor vehicles, trailers and semi-trailers	2	288	10.71	37.17					2	288	10.71	37.17
36	Manufacture of furniture	37	258	1.53*	5.94*					37	258	1.53*	5.94*
45	Construction	25	147	6.58	44.79	2	170*	6.86	40.35	27	149	6.60	44.41
51	Wholesale trade	5	282	25.55	90.61					5	282	25.55	90.61
52	Retail trade	61	267	11.34	42.40	2	232	4.58	19.72	63	266	11.13	41.78
55	Hotels and restaurants												
60	Land transport	30	217	11.30	52.16					30	217	11.30	52.16
63	Supporting and auxiliary transport activities	8	186	7.47	40.13					8	186	7.47	40.13
64	Post and telecommunication												
66	Insurance and pension funding	2	264	15.12	57.27					2	264	15.12	57.27
74	Other business activities	24	258	20.32	78.67					24	258	20.32	78.67
75	Public administration	23	287	42.85**	149.32**	2	288**	25.04**	86.94**	25	287	41.43**	144.31**
80	Education	17	242	6.31	26.05	5	231	3.53*	15.30*	22	240	5.68	23.70
85	Health and social work	1	288	30.24	105.00	4	282	14.46	51.28	5	283	17.62	62.21
92	Recreational, cultural and sporting activities	4	130*	4.82	37.07					4	130*	4.82	37.07
93	Other service activities	6	184	7.20	39.21					6	184	7.20	39.21
95	Private households with employed persons	5	172	9.01	52.38	3	251	5.15	20.53	8	211	7.66	36.29

Note: '*' and '**' represent lowest and highest values, respectively
Source: Field Survey

Table 9B: Annual Employment Days and Earnings Per Rural Non-Farm Worker in Different Sub-sectors (2-digit division of NIC-1998): Backward Region

NIC-2008 Division	Description	Male				Female				Person			
		No. of non-farm workers	Per worker		Per day earnings (Rs.)	No. of non-farm workers	Per worker		Per day earnings (Rs.)	No. of non-farm workers	Per worker		Per day earnings (Rs.)
			Annual employ-ment days	Annual earnings ('000 Rs.)			Annual employ-ment days	Annual earnings ('000 Rs.)			Annual employ-ment days	Annual earnings ('000 Rs.)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
15	Manufacture of food products and beverages	8	191	6.44	33.72	4	111	2.00	18.02	12	165	4.96	30.04
16	Manufacture of tobacco products	5	269	6.36	23.66	23	229	2.72	11.89*	28	236	3.37	14.28*
17	Manufacture of textiles	7	239	9.32	38.98					7	239	9.32	38.98
20	Manufacture of wood and wood products	1	207	9.13	44.10					1	207	9.13	44.10
21	Manufacture of paper and paper products												
26	Manufacture of other non-metallic mineral prod-ucts	3	99	4.39*	44.36					3	99	4.39	44.36
27	Manufacture of basic metals												
28	Manufacture of fabricated metal products, except machinery & equip												
29	Manufacture of machinery and equipment (nec)	4	263	12.12	46.02					4	263	12.12	46.02
32	Manufacture of radio, television and communica-tion equipment	1	300	6.05	20.16*					1	300	6.05	20.16
34	Manufacture of motor vehicles, trailers and semi-trailers												
36	Manufacture of furniture	14	231	8.94	38.72					14	231	8.94	38.72
45	Construction	36	150	8.28	55.36					36	150	8.28	55.36
51	Wholesale trade	10	158	12.31	77.89					10	158	12.31	77.89
52	Retail trade	69	201	7.45	37.07	1	136	4.78	35.11	70	200	7.41	37.06
55	Hotels and restaurants	1	312	7.86	25.20					1	312	7.86	25.20
60	Land transport	54	241	10.67	44.32					54	241	10.67	44.32
63	Supporting and auxiliary transport activities	2	180	6.18	34.33	1	100*	1.89*	18.90	3	153	4.75	30.98
64	Post and telecommunication					1	125	1.89*	15.12	1	125	1.89*	15.12
66	Insurance and pension funding	2	140	4.67	33.34					2	140	4.67	33.34
74	Other business activities	4	253	19.31	76.39					4	253	19.31	76.39
75	Public administration	9	313	48.18**	153.94**					9	313	48.18**	153.94**
80	Education	4	286	8.44	29.51	1	270**	7.91**	29.30**	5	276	8.10	29.38
85	Health and social work	2	330**	17.01	51.55					2	330**	17.01	51.55
92	Recreational, cultural and sporting activities	2	94*	9.42	99.93					2	94*	9.42	99.93
93	Other service activities	6	282	11.71	41.54					6	282	11.71	41.54
95	Private households with employed persons	3	232	14.31	61.70	4	315	6.35	20.16	7	279	9.76	34.94

VI. Determinants of Rural Non-Farm Workers' Choice of Mode of Employment

We now look into the main determinants of choice of mode of employment by the rural non-farm workers in our survey areas. In other words, our objective is to identify the factors that determine the rural non-farm workers' choice among three different modes of employment: 'regular salary/wage employment', 'self-employment' and 'casual wage employment'. As previously observed, in terms of 'earning per employment day', 'regular salary/wage employment' is the superior-most, which is followed by 'self-employment' and 'casual wage employment'. It then becomes imperative to identify the factors that determine the rural non-farm workers' choice/access to these alternative modes of employment.

To examine the determinants of the rural workers' choices of modes of employment in the non-farm sector, we estimated a variant of the 'ordered-probit model' as devised by Aitchison and Silvey [1957, Pp. 131-40]. Going by our example, the dependent variable of the 'ordered-choice model' is an index that takes on values '2' for the most preferred mode of employment, *i.e.,* 'regular salary/wage employment', '1' for 'self-employment', and '0' for least preferred mode of employment, i.e. 'casual wage employment'. It is assumed that the latent error term of the 'ordered-choice' model is normally distributed so that the model is reduced to what is called the 'ordered-probit' model. We estimate such a model by using the method of maximum likelihood.[11]

The Explanatory Variables and Hypotheses

The explanatory variables considered in our 'ordered-probit' model, and the underlying hypotheses are the following:

(1) Age of the worker (AGE): The age of the worker is likely to be an important determinant of her/his choice of mode of employment. As the younger people are typically better educated and more dynamic, they are likely to be preferred more for the 'regular salary jobs'. The younger generation is also likely to be more involved in 'self-employment' owing to their dislike towards 'casual wage employments'. In any case, the probability of getting absorbed in the 'regular salary/wage employment' / 'self-employment' is higher for the worker with lower age. To examine the relationship between the mode of employment and age, we have introduced age (AGE) and age-squared (AGE2) as explanatory variables. Our hypothesis is that the relation between the ordered dependent variable and AGE is positive and the relationship between the ordered dependent variable and AGE2 is negative.

(2) Sex of the worker (SEX): Access to better paid 'regular salary jobs' and the works in the 'self-employment' sector that yield higher returns *vis-á-vis* 'casual wage employments' is likely to be determined by the sex of the workers. In the current social milieu, the male workers are generally preferred for the better-paid regular salaried employments. Moreover, the female workers often find it difficult to initiate their own enterprises/businesses. As a result, the female workers are more likely to be involved in 'casual wage employments'. In any case, the relationship between the ordered dependent variable and SEX is likely to be positive. In our study, the sex of the worker is represented by a dummy variable that assumes value '1' if the worker is a male and '0' if female.

(3) Education of the worker (EDU): In general, the educational/skills requirement of the works in the 'self-employment' sector and 'regular salary/wage employment' is much higher than the 'casual wage employment'. Quite often, the less educated workers face the 'entry barrier' in the matter of the high-end jobs, available in the

'regular salary/wage employment' and 'self-employment' sub-sectors. To the extent that education enhances an individual's managerial and entrepreneurial abilities, it also increases the propensity to become the 'self-employed' [Lucas, 1978, Pp. 508-23]. In any case, the relationship between the ordered dependent variable and EDU is likely to be positive. The education of the workers is measured by their years of schooling.

(4) Caste of the worker (CASTE): This variable reflects the social status of the workers. Among the workers, those belonging to the scheduled castes/ scheduled tribes are generally lagging in terms of educational attainment and are also economically weak. Their social backwardness puts another barrier towards their entry into the jobs that yield better returns ('regular salary/wage employment' / 'self-employment') and pushes them more towards 'casual wage employments'. The caste status of the workers is captured by a dummy variable that assumes value '1' for SC/ST workers and '0' otherwise. Our hypothesis is that the relation between the ordered dependent variable and CASTE is negative.

(5) Operated Area (OPAR): The operated area of the household to which the worker belongs might be an important determinant of her/his choice of mode of employment. Here operated land area is assumed to be a proxy for wealth and contacts which are important to take advantage of opportunities in the non-farm sector (Lanjouw, 1999; Kijima and Lanjouw, 2005; Haggblade, Hazell and Reardon, 2008). Thus, the worker, who belongs to a household with large operated area, is more likely to be involved in 'regular salary/wage employment' and 'self-employment' rather than 'casual wage employment'. It is, therefore, hypothesised that the relationship between the ordered dependent variable and OPAR is positive.

(6) Value of non-farm assets (ASSETNF): Another important factor determining the mode of employment by the non-farm workers is their asset ownership position. There might be barriers to entry in some employments owing to lack of assets by the workers. This is particularly true in the case of 'self-employment'. Even the workers in 'regular salary employment' might appear to be asset-rich. We consider the value of non-farm assets (in Rs.) of the household to which the worker belongs as an indicator of her/his asset position. Our hypothesis is that the relationship between the ordered dependent and ASSETNF is positive.

(7) Region Dummy (REG): We have included a region dummy in the regression for 'combined regions' that assumes value '1' for the 'advanced region' and '0' for the 'backward region'. The objective is to see the differential effect, if any, of agricultural advancement on the choice of mode of employment by the workers in the non-farm sector.

While we recognize the possibility of some of these factors being highly correlated, as that follows from the correlation matrix, we have estimated alternative models by dropping one or more (multicollinear) variables. Further, some of the variables (not all) displaying high correlations between them have been included in some equations as that did not adversely affect expected signs and statistical significance of the estimated coefficients.[12]

Results of Ordered-probit Regressions

The results of estimated 'ordered-probit' regression models are presented in Table 10. It is observed that the estimated coefficients of all the explanatory variables (except SEX) have expected signs and are statistically significant in one equation or the other in the 'advanced region'. Thus, the rural non-farm workers that are young, better educated, not belonging to the scheduled

Table 10. Determinants of Mode of Employment by the Workers in the Non-farm Sector: Results of Ordered-Probit Regressions

Explanatory variables	Estimated Coefficients							
	Advanced region			Backward region			Combined regions	
	Eqn. 1	Eqn. 2	Eqn. 3	Eqn. 1	Eqn. 2	Eqn. 3	Eqn. 1	Eqn. 2
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Age of the worker [AGE]	-	0.16 (3.72*)		-	-	0.2 (4.01*)	-	0.17 (5.13*)
(2) Age of the worker squared [AGE^2]	-	-0.0001 (-2.69*)	-	-		-0.0001 (-3.27*)	-	-0.0001 (-3.55*)
(3) Sex of the worker [SEX]	-0.16 -0.46	-		1.9 (4.06*)	1.77 (3.73*)	1.72 (3.54*)	0.73 (2.81*)	-
(4) Education of the worker (years of schooling) [EDU]	-	-	0.18 (6.65*)	-	0.12 (3.81*)	-	-	0.18 (8.56*)
(5) Caste (SC/ST = '1'; Others = '0') [CASTE]	-1.02 (-3.95*)	-	-0.5 (-1.82***)	-	-0.12 (-0.48)	-	-0.52 (-3.03*)	-
(6) Operated Area of the household to which the worker belongs to [OPAR]	-	0.37 (4.87*)	-	0.21 (2.26**)	-	-	-	0.14 (2.25**)
(7) Value of non-farm assets of the household to which the worker belongs to (in Rs.) [ASSETNF]	0.0001 (1.78***)	-	-	-	-	0.0001 (1.93**)	0.0001 (2.10**)	-
(8) Region dummy [REG] [Advanced region = '1'; Backward region = '0']	-	-	-	-	-	-	0.28 (1.74***)	-
Pseudo R^2	0.03	0.09	0.09	0.0.06	0.08	0.11	0.03	0.15
Log-likelihood ratio [LR] statistic	21.03* {3}	62.80* {3}	65.91* {2}	27.98* {2}	37.90* {3}	55.93* {4}	33.73* {4}	186.04* {4}
Sample size	354	354	354	282	282	282	636	636

Notes: (i) The value of ordered-dependent variable (Y_i) is '2' if the worker is in 'regular salary/wage employment', '1' if in 'self-employment', and '0' if in 'casual wage employment';
(ii) Figures in first brackets are computed z-values which are approximations to asymptotic t-values;
(iii) Figures in second brackets are degrees of freedom for LR-statistic; and
(iv) *, ** and *** imply significance at 1, 5 and 10 per cent levels, respectively.

castes or scheduled tribes, and belonging to the households having higher operated land area are more likely to choose (or have access to) 'regular salary/wage employment' or 'self- employment' rather than 'casual wage employment'. Almost a similar conclusion holds in the 'backward region'. Here all the estimated coefficients have expected signs. Moreover, all the variables (except CASTE) are found to be statistically significant. Finally, when we consider the two regions together, not only do the estimated coefficients of all our explanatory variables have expected signs but they are also statistically significant. It is also to be noted that, in the regression for combined regions, the estimated coefficient of region dummy (REG) is positive and statistically significant implying that the non-farm worker from the 'advanced region' enjoys a better chance of getting involved in 'regular salary/wage employment'/ 'self-employment' as compared to the worker from the 'backward region'.

On the basis of the above results, it might be concluded that both the 'personal characteristics' such as age, sex and education, as well as 'household characteristics' like caste, asset ownership position and operated land area are important determinants of the choice of mode of employment by the rural non-farm workers in our study areas. It appears that more educated, young, and male workers from the non-SC/ST families are more likely to choose 'regular salary employment' / 'self-employment'. Their preference for 'regular salary employment' / 'self-employment' gets a further boost when they are drawn from families having higher operated land area or higher possession of non-farm assets. In other words, in the rural non-farm sector, the probability of choosing/obtaining only 'casual wage employment' is relatively greater for the aged, the females, less educated, and those suffering from a disadvantaged socio-economic status.13

VIII. Summary of Findings and Policy Implication

In our study areas, a sizeable section of the rural workers have diversified their occupations in the sense that they participated in the non-farm sector for their livelihoods. Among the rural workers, the degree of occupational diversification has been greater in the 'advanced region' compared to the 'backward region'. While 46 per cent of the rural workers have turned out to be the 'diversifiers' in the 'advanced region', the corresponding figure in the 'backward region' has been 38 per cent. The fact that a higher proportion of the rural workers have diversified their occupations in our agriculturally advanced region provides some support to the view that in prosperous agricultural zones, both the farm and non-farm sectors flourish in a mutually reinforcing fashion owing to their linkages, thereby enabling a larger section of the rural workers to benefit from the emerging non-farm employment/earnings opportunities. Another important feature of diversification in our survey regions is that the vast majority of the rural workers have diversified their occupations on an enduring basis. Thus, more than four-fifths of the non-farm workers have turned out to be the 'main' workers in both our study regions.[14]

However, the diversification behaviour of the workers varied in response to their sex. In both the regions ('advanced' and 'backward'), the degree of occupational diversification has been greater among the male workers compared to the female workers. Further, an inverse relationship seems to exist between the degree of occupational diversification and farm size. In other words, the workers from lower farm size categories have a greater tendency of diversifying their occupations.

To obtain a disaggregated view of the non-farm sector, we looked into the modes of employment, and the types of activities/

sub-sectors in which the non-farm workers are engaged. To begin with, we divided the non-farm workers into three broad groups according to their modes of employment. These are 'regular salary/wage workers', 'self-employed workers' and 'casual wage labourers'. We found that a very small proportion of the non-farm workers are employed as 'regular salary/wage workers' in our study areas. Consequently, a vast majority of them have been confronted with two choices: 'self-employment' and 'casual wage employment'. It is observed that, in the 'advanced region', nearly 46 and 39 per cent of the non-farm workers are engaged in 'self-employment' and 'casual wage employment', respectively. The corresponding figures in the 'backward region' are 48 and 47 per cent, respectively.

A clear sex-wise division of mode of employment is also visible among the non-farm workers in our study areas. While the male non-farm workers displayed a tendency of getting absorbed more in 'self-employment', the female non-farm workers are involved more in 'casual wage employment'. It is also observed that the incidences of non-farm workers in 'self-employment' and 'regular salary/wage employment' go up while that of 'casual wage employment' goes down with increasing farm size. Such a pattern is clearly visible in both the study regions ('advanced' and 'backward') for both categories of workers (male and female).

Following 2-digit divisions of NIC-1998, we disaggregated our analysis to look into the various sub-sectors/ activities in which the non-farm workers belonging to different modes of employment have been engaged. We found that, for male 'regular salary/wage workers', important sub-sectors have been 'public administration' and 'other business activities'. On the other hand, for female 'regular salary/wage workers', 'education' has been most important. In our study regions, both the 'self-employment' and 'casual wage employment' sectors have been much more diversified compared to the 'regular salary/wage employment' sector. This is borne out by the fact that the non-farm workers belonging to the former sectors have been engaged in a wide array of activities although all of those have not been equally important from the point of view of employing the non-farm workers. We identified 15 and 13 sub-sectors within the 'self-employment' sector in the 'advanced' and 'backward' regions, respectively. Similarly, in both the regions, there existed 17 sub-sectors within the 'regular casual wage employment' sector. 'Retail trade' has been the most important activity within the 'self-employment' sector in both of our study regions. Other important activities within this sector are 'manufacture of food products and beverages' and 'land transport'. These three sectors together accounted for 57 and 78 per cent of all (male plus female) non-farm 'self-employed workers' in the 'advanced' and 'backward' regions, respectively. The distribution of non-farm 'casual wage workers' has also been similarly skewed. Only four sub-sectors within this sector absorbed 66 and 71 per cent of all (male plus female) 'casual wage workers' in 'advanced' and 'backward' regions respectively. In the 'advanced region', these sub-sectors are 'manufacture of furniture', 'construction', 'retail trade' and 'manufacture of textiles' (in descending order of percentage of non-farm 'casual wage workers') which in the 'backward region' are 'manufacture of furniture', 'manufacture of tobacco products', 'land transport' and 'manufacture of furniture'.

Another important point to note is that, in both our study regions, the number of activities in which the non-farm workers participated as well as their compositions varied substantially in response to the sex of workers. We observed that the number of activities in which the non-farm workers participated is much higher for the male workers compared with the female workers. This is true irrespective of the mode of employment of the non-farm workers. In both the regions, for

male non-farm workers of the 'self-employment sector', most important has been 'retail trade' which for the female workers becomes 'manufacture of food products and beverages'. As regards male 'casual wage workers', 'manufacture of furniture' and 'construction' appeared to be very important in the 'advanced region'; in the backward region, apart from 'construction', 'land transport' turned out to be an important activity. On the other hand, majority of female 'casual wage workers' got absorbed in activities such as 'manufacture of textiles' and 'manufacture of tobacco products' in 'advanced' and 'backward' regions, respectively.

We looked into the 'intensity of employment' (as measured by annual employment days per worker) and 'annual earnings per worker' to understand the employment and earnings implications of involvement in the non-farm sector by the rural workers. It is found that both the 'intensity of employment' as well as 'annual earnings per worker' have been high in the non-farm sector of the 'advanced region' compared to the 'backward region'. Among the non-farm workers, the females reported higher 'employment intensity' compared to the males. However, in terms of 'annual earnings per worker', the males stood way ahead of their female counterparts. Consequently, the 'labour productivity' (per day earning) of the female non-farm workers turned out to be much lower compared to the male non-farm workers.

In the non-farm sector, both the 'intensity of employment' and 'annual earnings per worker' varied with changes in the modes of employment of the workers. In both the regions, as expected, the non-farm workers in 'regular salary/wage employment' recorded the highest levels of 'employment intensity' and 'annual earnings per worker'. Amongst all non-farm workers, the 'labour productivity' is also substantially higher for those in 'regular salary/wage employment'. Comparing the 'self-employed workers' with the 'casual wage workers', it is found that, in the 'advanced region', both the 'intensity of employment' and 'annual earnings per worker' are higher for the former compared to the latter. In the 'backward region', compared with the 'self-employed workers', the 'casual wage workers' displayed higher 'intensity of employment' but lower 'annual earnings per worker'. Thus, in both the regions, in terms of 'productivity of labour', 'self-employment' appears to be superior compared to 'casual wage employment'. This conclusion holds irrespective of sex of the workers and the region considered.

Further, when we looked into the employment and earnings levels of the non-farm workers engaged in different sub-sectors/ activities, it clearly appeared that the activities in which the majority of the non-farm workers have been involved are not necessarily the same as those which recorded high 'employment intensity' and/or high 'earnings per worker'. For example, the activities such as 'public administration', and 'health and social work' have displayed very high 'employment-intensity' as well as 'labour-productivity' but they absorbed abysmally low percentage of non-farm workers. On the other hand, 'retail trade' and 'manufacture of tobacco products', which engaged highest percentages of male and female non-farm workers respectively, recorded much low 'labour-productivity'.

We estimated the 'ordered-probit' regression models to identify some important (statistically significant) determinants of the rural workers' choice of (or access to) mode of employment in the non-farm sector. Our main conclusion here is that both the 'personal characteristics' (age, sex and education) as well as 'household characteristics' (caste, asset ownership and operated land area) are important in determining the choice of (or access to) mode of employment by the non-farm workers. The non-farm workers who are male, better educated, younger in age, and drawn from non-SC/ST families are more likely to prefer

'regular salary/wage employment' or 'self-employment', rather than 'casual wage employment'.[15] The probability of the non-farm workers choosing (or accessing) the 'regular salary/wage employment' or 'self-employment' is also high for the workers that are drawn from families having higher operated land area and higher possession of non-farm assets. Thus, in the rural non-farm sector, the probability of choosing (or obtaining) 'casual wage employment' is relatively greater for the aged, the females, less educated and those suffering from a disadvantaged socio-economic status.

Policy Implication

As the agriculture sector in West Bengal is faced with a very high pressure of population, efforts should be made to expand the base of the non-farm sector to generate alternative employment and earnings opportunities for the rural workers. However, it needs to be noted that the non-farm sector itself has been highly heterogeneous as it is composed of several activities which differ substantially in terms of 'labour intensity' and/and 'labour productivity'. Therefore, to attain significant expansion of employment and earnings of the rural workers (as also to reduce poverty) it would be necessary to focus on those segments of the non-farm economy which display high 'employment-intensity' and 'labour productivity'. In this context, the activities which fall within the 'regular salary/wage employment' category appear as the best choice. However, as there would not be much scope for expansion of 'regular salary/wage employment' opportunities, efforts should be made to expand rural workers' access to the 'self-employment sector' (especially those 'self-employment' activities which have high 'employment-intensity' and 'labour productivity'). To this end, improvement in 'education/skills' and 'asset base' of the workers might help. However, we admit the necessity of undertaking more detailed study to understand the characteristics as well as the dynamics of the 'self-employment sector' in rural West Bengal.

We would also emphasise that expansion of the non-farm sector alone would not be sufficient to bring about significant expansion of employment and earnings for the rural households as majority of their workers are still dependent on the farm/agriculture sector for their livelihoods. Therefore, it would be more appropriate to adopt a policy of simultaneously developing the farm/agricultural and non-farm sectors to obtain maximum result towards employment generation in rural areas. Our study has shown that the participation in the non-farm sector by the rural workers has been greater in the agriculturally 'advanced region' compared to the 'backward region'. Further, 'employment intensity' as well as 'labour productivity' of the non-farm workers in the former region have been greater compared to the latter. Therefore, the policy of 'balanced sectoral development' that emphasises simultaneous progress of both these sectors seems appropriate in the context of present-day West Bengal.

Steps should also be taken to encourage the rural females' greater participation in the non-farm sector in general and 'self-employment' sub-sector in particular. As the female workers have been participating more in 'casual wage employments', which are 'less productive', special efforts are needed to enhance their participation in 'self-employment' and 'regular salary employment' sectors. Better education and skills development of the female workers might contribute in this process. However, more in-depth study is also required to unravel the constraints (economic, social, cultural, etc.) that hinder the females' greater participation in the non-farm sector even when the rural economy of West Bengal has been experiencing rapid diversification in recent years.

NOTES

1. For reviews of literature, see Coppard [2001], Barrett, Reardon and Webb [2001, Pp. 315-31], Lanjouw and Lanjouw [2001, Pp. 1-23], Reardon, Berdegne and German [2001, Pp. 395-409], Nayyar and Sharma [2005] and Haggblade, Hazell and Reardon [2008, 2010].

2. See Chadha [2007, Pp. 343-64] and Haggblade, Hazell and Reardon [2008, 2010].

3. In a separate paper, we have compared the employment and earnings levels of the farm and non-farm workers in our study regions [see Bhaumik, 2009]. In the present paper, we confine ourselves to examining the employment and earnings levels of non-farm workers under different modes of employment and identifying some important determinants of their choice of mode of employment. It is also to be noted that about one-tenth of all rural workers in our sample districts worked as 'mixed workers' (participating in both the sectors) whom we have excluded here just to focus on those who are exclusive participants of the non-farm sector.

4. This suggestion was made by Prof. N. Rath. As such, there is no differentiation between persons working half a day (say 4 or 5 hours) and more than a day (10 or 12 hours). All workers are given equal weight. It may be pointed out, however, that conclusions did not differ between the tabulations as per the two definitions because our data tables, which basically report group-averages, portray the same picture.

5. The higher incidence of non-farm workers in the 'advanced region' compared with 'backward region' might be due to advanced agriculture producing favourable linkage effects (both production and consumption) which encourage expansion of employment opportunities in the non-farm sector [see Mellor, 1976].

6. The proportion of marginal workers amongst the farm workers has not been calculated. This information is not readily available as this has to be extracted from the raw data, which is not possible at this stage.

7. This seems to suggest that the flexibility as regards switching over to different non-farm activities is lesser among the female workers. This might be due both to their family compulsions as well as their works being more home-based.

8. It needs to be noted that when both the 'main' and 'marginal' workers are considered, 'casual wage labour' appears to be the most important mode of employment among the rural non-farm workers in our study regions, followed by 'self-employment' and 'regular salary/wage employment'. This implies that the majority of the 'marginal' non-farm workers got absorbed as the 'casual wage labourers'.

9. The fact that annual earnings of 'regular salary/wage worker' is much high in the 'backward region' than in 'advanced region' is mainly due to relative absence of lower cadres in the backward region.

10. We have not attempted such an exercise separately for non-farm workers under different modes of employment due to inadequacy of sample size.

11. For details about specification and estimation of the 'ordered-probit' model, refer to *EViews 6 User's Guide II*, pp. 226-232.

12. Some broad idea about presence of correlations between our explanatory variables could be obtained from the correlation matrix in Appendix Table 1.

13. As there are insufficient cases of 'regular salary/wage workers' in our sample, we ran separate 'binary-probit' regressions considering only the 'self-employed workers' and 'casual wage labourers' (see Appendix Table 2). The explanatory variables used are the same as in 'ordered-probit' models. The conclusions are also broadly the same. Thus, in the rural non-farm sector, the probability of choosing (or obtaining) 'casual wage employment', rather than 'self-employment', is relatively greater among the aged, the females, less educated, and those suffering from inferior socio-economic status.

14. The picture obtained by us is consistent with the view that the majority of the rural non-farm workers in India have been the 'main' workers [see Bhaumik, 2007, Pp. 40-65].

15. Our finding here fully supports the observation by Mohapatra *et al.* [2007, Pp. 163-81] in the context of rural China.

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Appendix Table 1. Simple Correlations Between Explanatory Variables Used in Ordered-Probit / Binary-Probit Regressions

Advanced Region	Variables	OPAR	SEX	AGE	EDU	CASTE	ASSETNF	
	OPAR	1.000	0.104	-0.040	0.351**	-0.306**	0.421**	
	SEX		1.000	0.045	0.078	-0.090	0.037	
	AGE			1.000	-0.160**	-0.128*	-0.025	
	EDU				1.000	-0.316**	0.177**	
	CASTE					1.000	-0.103	
	ASSETNF						1.000	
Backward Region	Variables	OPAR	SEX	AGE	EDU	CASTE	ASSETNF	
	OPAR	1.000	0.070	0.039	0.389**	0.025	0.434**	
	SEX		1.000	0.173**	0.176**	-0.035	0.046	
	AGE			1.000	0.065	-0.026	0.068	
	EDU				1.000	-0.015	0.147*	
	CASTE					1.000	-0.122*	
	ASSETNF						1.000	
Combined Region	Variables	OPAR	SEX	AGE	EDU	CASTE	ASSETNF	REG
	OPAR	1.000	0.091*	-0.005	0.367**	-0.162**	0.349**	0.062
	SEX		1.000	0.106**	0.127**	-0.070	0.034	0.040
	AGE			1.000	-0.057	-0.081*	-0.012	0.020
	EDU				1.000	-0.245**	0.174**	0.297**
	CASTE					1.000	-0.107**	-0.279**
	ASSETNF						1.000	0.124**
	REG							1.000

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Appendix Table 2. Determinants of Rural Non-farm Workers' Choice Between Self-employment and Casual Labour: Results of Binary-Probit Regressions

Explanatory variables	Estimated Coefficients							
	Advanced region			Backward region		Combined regions		
	Eqn. 1	Eqn. 2	Eqn. 3	Eqn. 1	Eqn. 2	Eqn. 1	Eqn. 2	Eqn. 3
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Age of the worker [AGE]	0.06 (5.52*)	-	0.07 (5.92*)	0.05 (4.00*)	0.05 (4.09*)	0.06 (6.74*)	0.06 (7.20*)	0.06 (7.27*)
Sex of the worker [SEX]	0.12 -0.28	-	-	1.52 (3.13*)	1.65 (3.35*)	0.77 (2.58*)	-	0.61 (1.95**)
Education of the worker (years of schooling) [EDU]	-	0.07 (2.08**)	-	0.07 (1.78***)	-	-	-	0.1 (3.92*)
Caste (SC/ST = 1; Others = 0) [CASTE]	-	-0.69 (-2.24**)	-	-0.25 (-0.94)	-	-0.6 (-3.18*)	-	-
Operated Area of the household to which the worker belongs to [OPAR]	-	-	0.52 (4.38*)	0.02 -0.15	-	-	0.31 (3.97*)	-
Value of non-farm assets of the household to which the worker belongs to (in Rs.) [ASSETNF]	-	0.0001 (3.13*)	-	-	0.0001 (3.42*)	-	-	0.0001 (3.48*)
Region dummy [REG] ('Advanced region' = '1'; Backward region = '0')	-	-	-	-	-	-	0.1 -0.56	-
Constant	-1.91	-0.46	-2.6	-3	-3.51	-2.12	-2.13	-3.17
McFadden R2	0.09	0.12	0.15	0.11	0.15	0.1	0.1	0.16
Log-likelihood ratio (LR) statistic	37.10* {2}	49.77* {3}	61.24* {3}	41.60* {5}	55.42* {3}	77.54* {3}	77.71* {3}	127.26* {4}
Sample size	300	300	300	266	266	566	566	566

Notes: (i) Binary-dependent variable (Yi) is '1' if the worker is in self-employment and '0' if in wage employment;
(ii) Figures in first brackets are computed t-values;
(iii) *, ** and *** imply significance at 1, 5 and 10 per cent levels respectively; and
(iv) Figures in second brackets are degrees of freedom for LR-statistic.

AN EVALUATION OF MID DAY MEAL SCHEME

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And
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With the twin objectives of improving health and education of the poor children, India has embarked upon an ambitious scheme of providing mid day meals (MDM) in the government and government-assisted primary schools. The administrative and logistical responsibilities of this scheme are enormous, and, therefore, offering food stamps or income transfer to targeted recipients is considered as an alternative. We show that the alternative delivery mechanism is not feasible in the Indian context, for it may lead to adverse consumption choices by the heads of the targeted households. We also test whether or not the meals offered through MDM scheme provide sufficient nutrition, food safety, and convenience and variety to the targeted children. Laboratory results show that nutritional delivery through the meals is low in comparison to the daily requirements in general, and, much lower in nutrients such as protein, fat, iron, and iodine in relation to the meal quantity in particular. Moreover, tests on food grains procured for the scheme showed presence of uric acid and aflatoxin. The delivery of MDM scheme may be improved by partnering with private entities and NGOs and by including ***chikki, sukhdi,*** *fortified nutrition bar, and fruit in the weekly menu. This will not only complement nutritional intake, but offer safety and variety, and, by reducing the distribution time, may offer more contact time between students and teachers for study purpose.*

Key Words:
Mid Day Meal Scheme; NP-NSPE; Primary School Education; Food Stamps; Income Transfers; Food, Fuel, and Fertilizer Subsidies; Food Safety; Nutritional Deficiency; Indifference Curves; Golden Rice; Nutrition Bars; *Chikki; Sukhdi;* ICMR; PFA; HACCP.

1. Introduction

The concept of supplementary nutritional support through educational institutions took its root in India when Madras Corporation developed a school lunch program in 1925. In the post-independence era, Gujarat was the first state to start school lunch programme in 1984. However, it was only in 1995 that the National Programme of Nutritional Support to Primary Education (NP-NSPE) was launched at the national level [GOI, 1995]. The then union territory of Delhi followed suit immediately. The objective of this programme was to give boost to universalisation of primary education and to impact the nutritional intake of students in primary classes. Since then, the programme was revised in 2004 and is popularly known as the Mid Day Meal (MDM) scheme. The incumbent government at the centre has emphasised its implementation in its Common Minimum Programme. It envisages provision of cooked, nutritious mid day meal to primary and secondary school children. Importantly, it mentions setting-up of an appropriate mechanism for quality checks.

Despite the broad-based efforts of the central government for more than a decade and a half and a few pioneering efforts earlier on, the problem of malnutrition, anaemia, deficiency in vitamin A and Iodine is very common among children in India. Today, 94 percent of children in the age group of 6 to 9 are mildly, moderately, or severely underweight. About 67.5 percent of children under 5 years and 69 percent of adolescent girls suffer from anaemia due to iron and folic acid deficiency [GOI, 1996]. In fact, the MDM scheme implemented in Delhi in the late 'nineties

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was found to be wanting on many evaluation parameters [GNCTD, 2000]. A nationwide study by Planning Commission [2010] also shows the MDM scheme to be wanting on several evaluation parameters. The poor performance, however, is in stark contrast to the actual spending under this programme. For example, an amount of Rs. 1400 crore was spent on this scheme in the year 2003-2004, and, the budget of the central government had allocated Rs. 7324 crore for this scheme in the year 2007-2008. In the state of Gujarat, in the year 2005-2006 a total of 31,152 schools (86% of the total primary schools in Gujarat) with 3.8 million beneficiaries (47% of the students enrolled) were covered under this scheme and the state budget allocated for the scheme in the year 2005-2006 was about Rs 201 crore. This allocation amounts to Rs. 2.65 per student assuming 200 school-days in an academic year. A third of the beneficiaries in Gujarat were from Ahmedabad.

Given the scope of MDM scheme in terms of the expenditures incurred and number of beneficiaries on one hand, and the abysmal health and demographic statistics on the other, it becomes imperative that an evaluation of the scheme be attempted to judge its efficacy. The obvious enormity of the administrative and logistical responsibilities of offering mid day meals in schools raises the issue of alternative forms of nutrition delivery to the children. In Section 2, using the indifference curve approach to household welfare, we explore whether or not targeted food stamps programme or income transfers, as implemented in developed countries and recently proposed by the Indian government for fuel and fertilizer, could be more suitable than the MDM scheme. Next, we focus on the quality attributes of the food provided to the beneficiaries. If we are to continue with the MDM scheme, we need to raise the question - Are the beneficiary children being provided safe and sufficiently nutritious food as has been envisaged in the scheme? To this end, in Section 3 we document food and food service quality issues observed during school visits. Moreover, objective laboratory evaluations of hidden attributes such as nutrition and food safety of a typical meal are presented in Section 4. Specific suggestions are made in Section 5 in relation to the observations and analysis presented in Sections 3 and 4. Finally, in Section 6 we summarise and provide concluding observations.

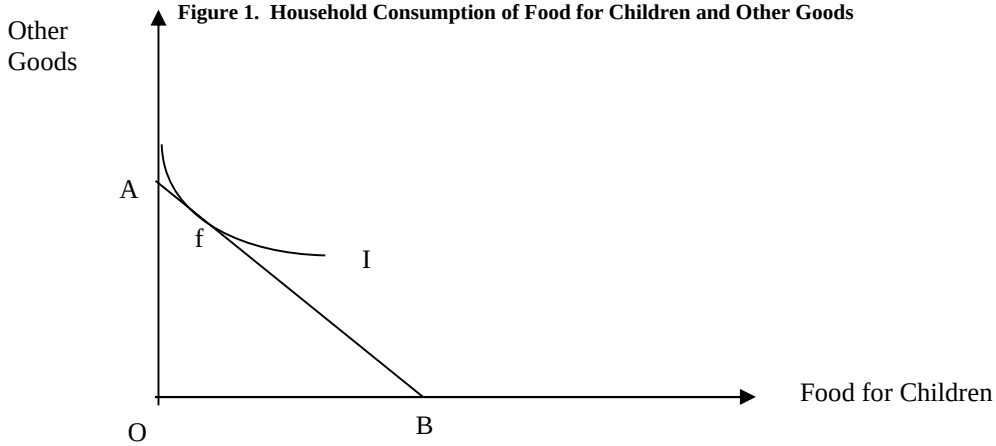
2. Case for MDM Scheme

Given the obvious enormity of the administrative and logistical responsibilities of offering mid day meals in schools, one may consider two alternatives to MDM scheme - the food stamps programme and the targeted income transfers. In US, for example, a food stamps programme is in place to help the poor. A four-member household which has gross annual income of $26,000 or less or a net annual income of $20,000 or less is eligible for about $500 worth of food stamps per month. This programme has worked reasonably well in the US.[1] In India, some organisations including Federation of Indian Chamber of Commerce and Industry (FICCI) have advocated use of food stamps [FE, 2010]. FICCI suggests linking various social sector schemes of the government to food stamps and it also calls for mandatory enrolment of minor dependents in schools. Similarly, though not related to food distribution, the incumbent government at the centre would like to give fuel and fertiliser subsidies to farmers as direct income transfers instead of continuing with subsidised prices. It is hoped that with the implementation of Aadhar, the unique identification number for each individual, government would be able to hand out such subsidies to the targeted farmers.

To understand the efficacy of the food stamps programme or the income transfer as an alternative to MDM, let us consider the choice a household makes between spending money on food for the children and spending money on other goods. The preference for these two goods for a

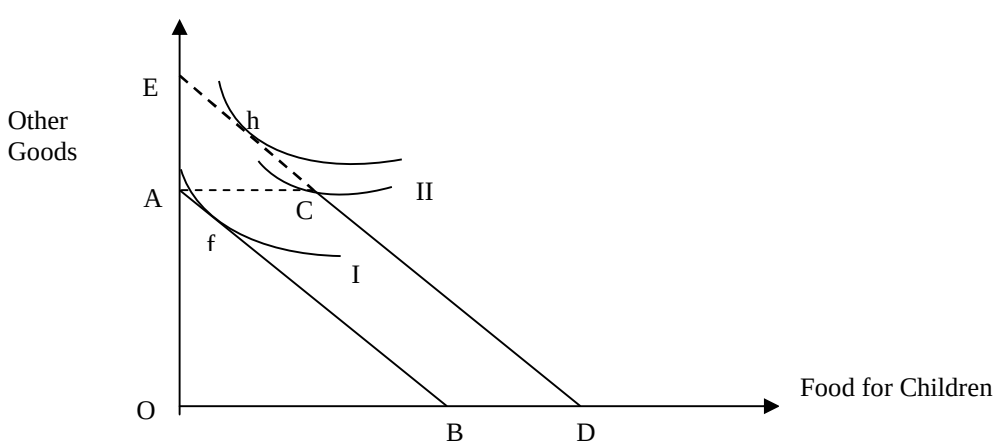
household is shown by an indifference curve I as shown in Figure 1. At the same time, the household has its budget constraint given by the line segment AB. Given the preferences and the budget constraint, a household chooses a bundle of two goods such that the utility is maximised at the equilibrium point f on the indifference curve I.

Figure 1. Household Consumption of Food for Children and Other Goods



Now consider a situation where support is provided to households of the eligible children through distribution of food stamps, which they can exchange for food items in the grocery shops. When the food stamps are distributed to the households of the eligible children, what is aimed at is the shift of the budget constraint from segment AB to ACD (see Figure 2). It is hoped that households will exchange food stamps for food for children and the food consumption of the children in the households will increase. If households are inclined to sell the food stamps in secondary market, additional cost will be incurred by government to prevent this from happening. This forced choice is depicted in the figure at point, C, a corner solution, where the utility level II is higher than before and consumption of food for children has increased. However, consumption of food by children does not increase by the full equivalent quantity of food that could have been purchased using food stamps (distance AC). This means that although food stamps are being used fully, there is some reduction in direct market purchase of food (for children).

Figure 2. Household Consumption under Food Stamp Programme.



More importantly, the preference structure of the household may be such that the household may do even better (but worse for the children). There is a distinct possibility that the food stamps can be sold in the secondary (legal or illegal) market.[2] In such a case, as shown in Figure 2, the segment CD gets extended to point E and ED becomes the effective budget constraint which now is tangent to the indifference curve III at point h. By selling some food stamps in the market, household has increased consumption of other goods, and, therefore, the increase in the consumption of food for children is even lower. Further, one also cannot rule out the possibility of food for children becoming an inferior good. The tangency point h could very well be to the left of the initial tangency point f. In this case, the consumption of food for children is lower than what it was in the absence of the food stamp programme. Thus, in the best case scenario, where food stamps cannot be sold in the secondary market, food consumption by children will not increase by the full equivalent quantity of food that could have been purchased using food stamps. And, in the worst case scenario, introduction of food stamp programme may lead to reduction in the food consumption by children.

The above choices result because disadvantaged households may not have full information about the importance of nutritional aspects and the long term benefits of healthy child upbringing, and, as we describe below, there may be other important things in households' lives than food. This household preference is captured in the nature of their indifference curve mapping (I, II, and III). The marginal rate of substitution between food for children and other goods could turn out to be very low, *i.e.,* the indifference curves are quite flat, and, therefore, the tangency point may occur on line segment EC, the secondary market part of the budget constraint. This may result in very low increase or sometimes decrease in the food consumption for children. Therefore, such food stamp programme may not have its desired impact although it may be administratively easier to implement. The likely adverse impact of the food stamps programme would certainly get replicated if government or an NGOs were to make direct income transfers to the targeted households. In this case, the line segment AB denoting the budget constraint would shift outwards to line segment ED and the utility maximising bundle would get chosen at an equilibrium point such as h. In fact, the very idea of introducing food stamps over direct income transfers suggests that institutions and authorities are not sure whether or not the poor will use the transferred income for food consumption.[3] And, the same argument gets extended to food stamps, for there will be a secondary market for food stamps. Of course, similar argument may be extended to MDM scheme itself - the children eat less at home, therefore, total increase in consumption by children is not equal to the amount of food given in school. Important difference, however, is that increase in consumption by children is ensured through MDM scheme.

There are plenty of instances where the monthly wage of housemaids is captured by their husbands to buy expensive liquor which they could not buy before. With the additional supplementary income there is a discrete switch in favour of such consumption which may lead to fall in consumption of food for children. And, importantly, it is not just the stereotypical liquor story. This happens in case of gadgets such as cellphones, televisions, and many other similar goods. Indeed, if food for children is an inferior good, then the MDM scheme which provides more food than what the children consume in the absence of it would be necessary and it would be better than the provision of an equivalent income supplement or food stamps. In this context, Banerjee and Duflo [2011] address issues on matters such as whether or not the poor really eat well and enough, why do they eat so little, and, importantly, is there a nutrition based poverty trap? Their studies across eighteen countries over

the last fifteen years show that other things are more important in the lives of the poor than food. Things that make life less boring become a priority. In their study conducted in Udaipur, they find that a typical poor household could spend up to thirty percent more on food if it completely cut expenditures on festivals, tobacco, and alcohol. Even among food items, poor tend to spend extra income on better-tasting, more expensive calories, which are not only more expensive than grains calories but bereft of nutritional content (e.g. sugar & sweetmeats). The lack of understanding of the importance of foods with critical micronutrient and macronutrient contents makes the issue even more difficult. That poverty may make people impatient and future pleasures seem quite remote is also borne by Becker and Mulligan [1997, Pp. 729-58]. While addressing the issue of inter-temporal choices for utility, they conclude that wealth seems to introduce patience in consumption and that education seems to reduce the remoteness of future pleasures.

The long term solution to this problem is to have an extension activity to educate (disadvantaged) households about the importance of nutrition and healthy growth of children. Basically, this amounts to altering the household preference mapping in favour of food consumption by the children. If this is achieved through adult education and extension activities by health ministries and departments at various governmental levels and by NGOs, then one can think of implementing food stamps programme or direct income support to disadvantaged households. As depicted in Figure 3, such a change in the household preference is captured by the higher sloped indifference curves U_1 and U_2, where the marginal rate of substitution of food-for-children for other goods is much higher. Now, the tangency point of indifference curve U_2 with the budget line CD at g is also the tangency point of that indifference curve with the budget line ED. In the long run, the desired effect in terms of food and nutritional security for children will be achieved irrespective of the policy choices - *i.e.*, have MDM or food stamps or direct income transfers. However, since income transfer simplifies logistics and is cost effective, that could be the preferred policy in the long run.

One is quite uncertain, however, about how long is the long run and what would be the degree of impact of the extension activity. Hence, something urgent needs to be done in the short and the medium run. The solution lies in providing incentive in such a fashion that households choose to send their children to school and which results in increased nutritious food consumption by the children. The only way to do this is to provide lunch in (mostly) government run schools where children of the disadvantage households get enrolled. Since, no food stamps are distributed or direct income support is provided, and children are offered lunch only at school (parents cannot resell the lunch), the EC part of the spending option is just not available to the households anymore (see Figure 4). Households are forced to settle for point C on the indifference curve II, a corner solution. Of course, as pointed out earlier, here the increase in food consumption of children is less than the food provided in MDM, but MDM guarantees the best case scenario of the food stamps programme; *i.e.*, a corner solution such as at point C on indifference curve II in Fig. 4 or an equilibrium point with larger consumption of food for children than at point C. It also avoids cost of preventing black-market sale of food stamps, offers nutritious food to the children, and, incentivises children to attend school. There would be costs, however, of supplying material to schools, and of preparing, distributing and inspecting the cooked food. A rough estimate of such a cost, based on secondary sources, is provided little later.

Figure 3. Household Consumption with Changed Preferences.

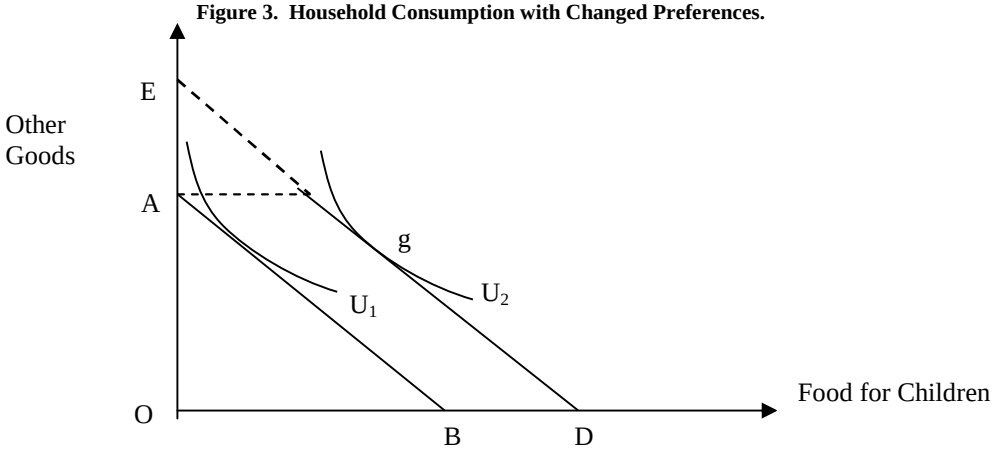
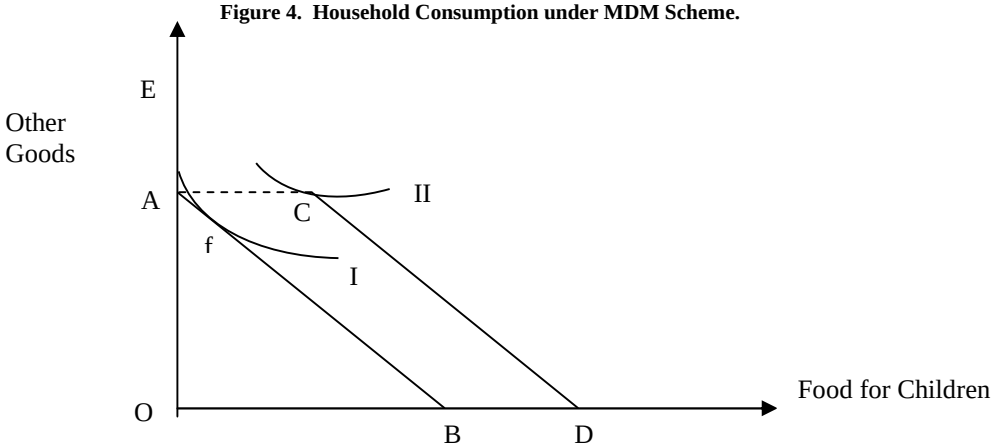


Figure 4. Household Consumption under MDM Scheme.



The above discussion indicates that societal welfare would be higher if we choose to implement MDM scheme over food stamps programme or direct income transfers. Of course, the efficacy of such MDM scheme is based on the premise that nutritious food gets consumed by the targeted school children. The Supreme Court of India has given clear direction in this regard. The apex court decreed that state governments must "implement the mid day meal scheme by providing every child in every government and government-assisted primary schools with a prepared mid day meal with a minimum content of 300 calories and 8-12 grams of protein each day of school for a minimum of 200 days [SC, 2001]. In fact, as per the Ministry of Human Resource Development (MHRD), latest norms laid down in 2008 for NP-NSPE require the scheme to provide 700 calories and 20 grams of protein per meal per day [MHRD, 2011]. Revenues generated through the recent introduction of Education Cess on union taxes are to be used for providing nutritious, cooked meal in schools. Therefore, it is important to ascertain if the lunches offered through MDM scheme are of good quality. Important quality attributes in the context of MDM scheme would be the general hygiene in the kitchen and service area of the schools and food safety, palatability, variety, and importantly, nutritional quality of the prepared

meal as has been emphasized in NP-NSPE and by the Supreme Court. We take up these aspects next.

3. School Visits and Observed Food Quality

We visited a few primary schools in Ahmedabad where MDM scheme is implemented. Ahmedabad Municipal Corporation (AMC) has been running the MDM scheme since 1984. Out of the total of 563 schools under MDM Scheme, 538 are covered by a centralised kitchen system. In the remaining 25, meals are prepared in the school itself. 477 schools are served by Stri Shakti, a non-governmental organisation (NGO). To get a diverse experience of the implementation of the scheme, we visited schools from three different locations out of the twenty-five where meals are prepared on site. These were the municipal schools in Gomtipur, Sabarmati and Ellis Bridge areas of Ahmedabad. We also visited the centralised kitchen complex of Stri Shakti. The visits were planned by the Centre for Management of Health Services (CMHS) at IIMA in conjunction with the municipal and school authorities. It may be noted that the municipal and school authorities knew about our visits and had time to showcase their best practices.

In Gomtipur school, the aluminium vessels used for cooking and carrying food looked pretty old, shabby, deformed and broken due to overuse. The staff had prepared Dal Dhokali that day and we had lunch with the kids. Dal Dhokali was warm and tasted very good. During our interaction with students and cooks, it appeared that cooks were a bit reluctant to prepare Dal Dhokali for it involves elaborate preparation compared to other preparations. In Sabarmati school kitchen infrastructure had been developed by the firm Torrent for a community project called "Sparsh". While the dining area shed was newly constructed, the floor on which students sat to have their meal was quite dirty. Spilled food liquids from earlier days were not cleaned from the floor properly. Moreover, children were required to wash their plates after the meal by rubbing the playground soil on the plates and then giving a quick rinse. Hygiene factor certainly seemed to be missing. Moreover, the teachers themselves were expected to serve the food to the children. At Ellis Bridge School (No. 6 & 7) there were too many flies in the kitchen. There was a fire extinguisher accumulating dust and rust, sporting a manufacturing year - 1987. A common feature we observed at all locations was that although MDM scheme may be offering different prepared food items each day, there was bound to be repetition of grains, seasonings, and flavours in the food.

As mentioned earlier, we also visited the centralised kitchen of Stri Shakti, an NGO engaged in provision of food to 477 schools in Ahmedabad. This experiment of giving contract to an NGO has been initiated by AMC only in the recent past. The weekly menu offered by Stri Shakti comprises Rice and Dal, Puri and Chana, Khichdi and Sabji, Puri and Alu sabji, Shira and Chana (desi), and Khichdi and Dal Baingan. We observed that the kitchen staffs wore clean uniform with caps on, the overall process of cleaning the grains, sorting; roasting was being done quite hygienically. Materials supplied by state government were of reasonable quality. All the cooking utensils looked clean and were made of stainless steel. There was a separate area for cleaning the vessels. An observation shared by one of the employees of the Stri Shakti was that quality of supplies coming from Food Corporation of India (FCI) was not good compared to the one provided by state government.

Once the food is prepared, it is distributed to various schools by tempos. We observed loading of the food-cans in the tempos, and, were aghast to see workers placing their bare feet on the part-open lids of the cooked food-cans. We did visit a school which receives the food from Stri Shakti. Because it takes time for the tempo to

reach all of the schools, either school recess time has to be advanced, delayed or extended, or the food does not stay warm till children get to eat it. Teachers complained that the recess time is not sufficient to serve meals. In fact, as the teachers have to manage the whole affair, they do not get time to eat their own lunch. Thus, there is additional wastage of school time. Our observations from the school visit are corroborated by other studies. Jain and Shah [2005, Pp. 5,076-88] argue that the absence of a separate administration for meal management has placed an enormous burden on teachers, which poses a danger of further compromising the already very poor quality of primary education.

Planning Commission [2010, Pp. iv-vi] has recently brought out an evaluation report of the national MDM scheme. Quite a few 'Findings and Highlights' of the report clearly voice the concerns that have been expressed above. Some of the findings are reproduced below (verbatim):

* Except for Tamilnadu and Kerala, in rest of the states a majority of sample schools, on an average, suffer from the unavailability and poor functional condition of kitchen sheds.
* All the states, except for Bihar and Rajasthan, have reported poor availability of tumblers. Except for Rajasthan, all the states have reported a poor availability of plates.
* In most of the states teachers spend about one to two hours daily on activities related to CMDM thereby reducing precious teaching time.
* Out of the 17 sample states where the data was collected, students in 9 states reported that they were involved in washing utensils.
* It has also been observed that the programme has resulted in the diversion of the attention of teachers and students on activities related to it, rather than towards teaching and learning activities, which results in loss of studies.
* Most of the states, it was observed, did not follow the guidelines of Government of India to deliver food grains at the school point by PDS dealer, thereby resulting in the leakage of food grain. There have been instances where due to long supply chain, food grain supplied got adulterated and pilfered.

4. Hidden Food Quality Attributes

The documentation made above pertains to food and food service attributes that can be directly observed through school visits. This refers to the (un) hygienic food delivery practices, observations and perception regarding raw materials, the perceived lack of variety in food, and study-related inconvenience both to students and teachers. In addition, however, there are hidden attributes of food that also need to be carefully analysed. The hidden attributes of food can be divided into two - food safety and nutrition. Nutrition, of course, refers to the embodiment of energy and nutrients such as protein, carbohydrates, fats, vitamins, micronutrients, and fibre in food items. Food safety, or the lack of it, is associated with presence of biological, chemical and (quasi) hidden physical hazards. Harmful bacteria and viruses such as salmonella, E-coli are examples of the biological hazards. Chemical hazards could arise due to natural toxins such as aflatoxins and residues of pesticides, chemicals and heavy metals. The (quasi) hidden physical hazards such as infestation, hair, flint stones, may not be observable by naked eye but have potential for bodily harm.

In a repeat-consumption context, as is the case in mid-day-meal scheme, biological food contamination is generally kept in check, for its consequences are generally known immediately after the consumption. Therefore, following Nelson [1970, Pp. 311-329] and Darbi and Karni [1973, Pp. 67-88], food-products/meals may be characterised as experience goods with repeat-purchase, where market institutions seem to take

care of the contamination problem. More importantly, however, food-products/meals are also classified as credence goods, where quality of food in terms of nutrition and safety is not known to consumers and often to producers, long after the consumption of the product. Thus, in the presence of imperfect and asymmetric information, market institutions are likely fail to deliver efficient outcomes in the case of credence goods such as mid-day meal. That is, nutritional deficiencies in mid day meal and carcinogenic effects of mild contaminations would show up in the young population with a lag of at least a few years.

A few studies have indicated the problem of poor food quality of mid day meals. Dreze and Goyal [2003] conclude that with additional resources and quality safeguards, mid-day meals can play a major role in improving school attendance, eliminating classroom hunger, and fostering social equity. Another study on MDM scheme in Delhi clearly points out that quantity and quality of the mid day meal needs to be improved and that so far what is provided does not justify the term mid day meal. It suggests monitoring of school functioning which may be inhibiting proper implementation of the scheme [Samson, Noronha and De, 2007, p. 28]. Khera [2006, Pp. 4,742-50] opines that the net impact of the scheme on child's health will depend upon whether the meal is a supplement or a substitute for food intake at home both in terms of quality and quantity. If it is largely a substitute for home food, the nutritional impact may not be large. Jain and Shah [2005] study reported earlier, mentions that the enrolment in schools has gone up despite poor meal quality and inadequate infrastructure. Yet another study, based on a survey of primary schools in the state of Madhya Pradesh, concludes that the MDM scheme had a substantial effect on reducing hunger at school and protein-energy malnutrition [Afridi, 2010, Pp. 156 & 160]. Of course, while the scheme would certainly have an effect on reducing hunger, this study, however, is completely silent on how it calculated the amount of nutrition content of a mid day meal. Delivery of meal itself cannot be an indicator of sufficient delivery of nutrition.

The taste of the pudding is in the eating. The test of nutritional quality and food safety is in its objective quantification in laboratory. For an objective, scientific assessment of the meal quality, we conducted laboratory tests in St. Xavier's laboratory, Ahmedabad, on the prepared meal samples collected from the schools and the NGO Stri Shakti. Similarly, tests were also conducted on the raw materials such as wheat, rice, and dal used in the preparation of these meals. Appendix I gives a brief description of the scientific tests we conducted on the samples. Below we provide the results of these tests pertaining both to nutritional quality and food safety.

Nutrition

Table 1 shows some of the Indian Council of Medical Research (ICMR) recommended nutritional daily allowances (RDA) as reported in Swaminathan [1999, p. 519]. While the Supreme Court ruling and NP-NSPE [GOI, 2004] required the scheme to provide a minimum of 300 calories and 8 to 12 grams of proteins per day per child for at least 200 days, as per the latest NP-NSPE norms posted by the MHRD, from 1 April 2008 the scheme is required to deliver minimum of 700 calories, 20 mg of protein, and a balanced and nutritious diet [MHRD, 2011]. Based on the 700 calorie diet, Table 1 also indicates the proportional quantities of micronutrients one may expect to get delivered. It must be noted, however, that NP-NSPE-2008 does not prescribe any minimum cardinal numbers for the intake for micronutrients. It only states that "balanced and nutritious diet" should be provided. The only cardinal number that is expected is the minimum protein intake of 20 gms per day. Even the earlier NP-NSPE-2006 guidelines summarized in the evaluation report by Planning Commission [2010, p. iii] only stated that "adequate quantities

of iron, folic acid, vitamin-A, etc." be provided. The main objective, therefore, seems to be to take care of hunger and provide incentive to children to come to school.

Table 1. Recommended Daily Allowance (RDA) for Children*

	ICMR RDA		Meal Equivalents
	Age 7-9	Age 10-12	
(1)	(2)	(3)	(4)
Protein (gms/day)	41	54	20 (NP-NSPE, 2008)
Fat (gms/day)	15	15	5.46/5.15 (700 cal. equivalent)
Calcium (mg/day)	400	600	146.6/206 (700 cal. equivalent)
Iron (mg/day)	25	28*	9.1/9.6 (700 cal. equivalent)
Folic Acid (mg/day)	100	100	36.5/34.3 (700 cal. equivalent)
Iodine (ug/day)	120+	150	43.7/51.5 (700 cal. equivalent)
Total Calories	1925	2050	700 (NP-NSPE, 2008)

*Average for boys and girls. + Swaminathan [1999, p. 519]. The same statistics is given by International Council for the Control of Iodine Deficiency Disorders (http://www.iccidd.org).

Because the programme does not prescribe any cardinal minimum numbers for micronutrients, perhaps, the minimum micronutrient numbers based on the ICMR norms may act as guidelines for a separate programme that may take care of that need. In this context, the estimated values for the samples from 2 locations, Ellis Bridge School 6 and the Stri Shakti Kitchen are presented in Table 2. Sample of khichadi and sabji, and cooked rice and sabji were picked up from these two locations, respectively. The quantities of protein and iodine contained in the samples in both locations are extremely low compared to the minimum proportional requirement for 700 calorie diet expected from the meal. In fact, children may not partake balanced and nutritious food at home, and, hence, one should expect nutrition provided in the mid day meal to be much more than the proportional requirement. Inadequate amounts of iodine only confirm that no fresh vegetables or raw food are served in the meal. Similarly, provision of fat and iron is also quite lower than the minimum expected. However, provision of calcium seems to be quite generous. Though the actual calorie values of the food samples were not calculated by the lab-team, it must be noted that between 2006 and 2008, the calorie expectation for the meal has jumped from 300 calories to 700 calories per day (more than a third of the daily requirement).

Table 2. Nutrition Analysis of Prepared Food Samples

	Ellis Bridge School No. 6		Stri Shakti Kitchen	
	Khichadi	Sabji	Cooked Rice	Sabji
Wet Weight (gms)	675		725	
Protein (gms/day)	2.56		1.79	
Fat (gms/day)	1.80		3.25	
Calcium (mg/day)	245		226	
Iron (mg/day)	4.9		3.43	
Iodine (ug/day)	8.4		9.5	

Food Safety

Just as we evaluated nutritional aspects of the prepared meals, we also evaluated the hidden and quasi hidden hazards present in the uncooked or raw food materials. Existence of such hazards in the raw material indicates that safety of prepared foods may also be jeopardised. In Tables 3, 4, and 5 we present the presence of such hazards in wheat, rice, and tuar dal; and, relate them to the legal safe limits given by the Prevention of Food Adulteration Act [PFA, 2006]. Except for wheat in Sabarmati school and tuar dal in Stri Shakti kitchen all other samples had levels of uric acid much higher than the stipulated rules of PFA. This only points to the possibility of the presence of rodents in storage areas, either in schools or at the warehouses of Food Corporation of India (FCI). While infestation is close to PFA limits for cleaned material, unclean materials have very high percentage of infestation. The quantity of broken grains was quite high in all three places for uncleaned rice. In Ellis Bridge location worms were found in rice. No foreign matters such as animal droppings or hair were found in the samples. Traces of aflatoxin were found in rice at the Sabarmati and Ellis Bridge locations. Presence of aflatoxins in food samples is a serious concern, for Aflatoxin is a carcinogen and prolonged consumption of it may lead to liver cancer. PFA allows 30 ppb intake of aflatoxin but its intake is undesirable for children. The name aflatoxin is derived from the fungi *Aspergillus flavus* which produces the toxin in moist and hot conditions. Improper pre-and-post harvest handling of agricultural commodities produces aflatoxin. Our observation regarding aflatoxins was corroborated by the laboratory isolation of this fungi.

Table 3. Test Results for Hidden and Quasi Hidden Attributes in Wheat

PFA Rules	Uric Acid NMT* 100mg/kg, *i.e.*< 1%	Infestation Weevilled NMT 10% by count	Moisture NMT 14% by weight	Aflatoxin NMT 30mg/kg	Broken % count
(1)	(2)	(3)	(4)	(5)	(6)
Type			Sabarmati		
Cleaned	0.12**	3.0	1.3	-	8
Uncleaned	0.18	4.5	2.4	-	12
			Ellis Bridge		
Cleaned	1.65	7.5	7.1	-	3
Uncleaned	1.90	11.5	6.5	-	5.5

* NMT: Not more than. ** All numbers are expressed in percent terms.

Table 4. Test Results for Hidden and Quasi Hidden Attributes in Rice

PFA Rules	Uric Acid NMT* 100mg/kg, *i.e.*< 1%	Infestation Weevilled NMT 10% by count	Moisture NMT 14% by weight	Aflatoxin NMT 30mg/kg	Broken % count
(1)	(2)	(3)	(4)	(5)	(6)
Type			Sabarmati		
Cleaned	1.2*	8.5	3.8	+	65
Uncleaned	1.2	12.5	5.1	+	65
			Ellis Bridge		
Cleaned	1.8	11.5	8.1	-	5.5
Uncleaned	2.9	39.5	8.0	+	29
			Stri Shakti Kitchen		
Uncleaned	1.2	17.5	2.0	-	37.5

* All numbers are expressed in percent terms. + traces found. $ Worms found in rice.

Table 5. Test Results for Hidden and Quasi Hidden Attributes in Tuar Dal

PFA Rules	Uric Acid NMT* 100mg/kg, *i.e.*< 1%	Infestation Weevilled NMT 10% by count	Moisture NMT 14% by weight	Aflatoxin NMT 30mg/kg	Broken % count
(1)	(2)	(3)	(4)	(5)	(6)
Type			Sabarmati		
Cleaned			-	-	
Uncleaned	2.91	25.5	3.1	-	13.5
			Ellis Bridge		
Cleaned	2.00	0	6.5	-	5.5
Uncleaned	2.96	29.5	6.7	-	?
			Stri Shakti Kitchen		
Cleaned	0.83	6	8	-	4.5
Uncleaned	1.26	1	6.7	-	3.5

* All numbers are expressed in percent terms.

5. Specific Suggestions

Some of the observations made in Sections 3 and 4 above may be discounted by the fact that in a developing country like India, the general level of awareness and cleanliness is low and it is not specific to MDM scheme alone. Nonetheless, in our opinion, there is a potential for general increase in hygiene and cleanliness at the schools and kitchens. Introducing private enterprises like Stri Shakti in the running of the MDM scheme may be a better idea than governmental agencies themselves getting involved in the operational delivery of the scheme. Private incentive structure to generate market efficiency is generally absent in government sector, especially when the core competence of schools is to deliver education and not to prepare meals. Of course, as observed during our visits, private organisations and NGOs like Stri Shakti may have their own lacuna, however, the threat of non-renewal or cancellation of contract should act as a disciplining mechanism. In this context, to increase efficiency and quality of the prepared meal service, contracted private parties may be required to follow formal food quality management system called HACCP or the Hazard Analysis and Critical Control Points [Deodhar, 2004]. Such system needs to be audited periodically by an external certifying agency. This generates an incentive for the food service provider to maintain quality in all its operations. Partnering with private agencies will also reduce the non-teaching commitments of the teachers. Currently, while separate cooks are assigned for meal preparation, we observed that teachers have to spend their time to serve food to the students. Often recess time is not enough for the teachers to serve food and have their own lunch as well. Therefore, provision of meals to students is taking place at the cost of study-time meant for student-teacher engagement. Engaging private parties such as Stri Shakti may save this valuable time.

It must be noted that the mandated mid day meals are supposed to provide only a minimum of 700 calories out of the total requirement of about 2000 calories per day. Thus, at best, a massive MDM exercise may contribute to, if required nutrients are present in sufficient quantities, about a third of the daily requirement of a child. Therefore, efficacy of the nutrition delivery could be increased by offering fortified packaged foods. Such initiatives have been taken-up in other developing countries. For example, at the behest of Ministry of Health, triple fortified

(Iodine, Iron, Vitamin A) noodle-seasonings and soya sauce have been commercially introduced in Thailand and China. Other fortified foods such as fortified sugar, milk and edible oil have been launched in Latin American countries (IE, 2010). India could do the same. In fact, menu could include local ready-to-eat *chikki* and *sukhdi* or an occasional nutrition bar.

An estimate based on the reference cooking cost, grain delivery cost, and additional cook-cum-helper cost [MHRD, 2011] shows that government spends at least Rs. 6.50 per day on each child.[4] However, as per the MDM evaluation report by the Planning Commission (2010, p. 5) government is also expected to incur additional costs of Rs. 60,000 on kitchen infrastructure and Rs. 5000 per year (year 2006 figures) on kitchen devices. Moreover, the same report (p. vi) also claims that pilferage and adulteration of grains occurs since grains are supplied and distributed in loose form to schools. There is also no control or standardisation on the quantity of pulses that get added to the prepared *dal.* Watered-down *dal* is a sure recipe for a low protein diet. While the yearly actual budget and the apportioned amounts for various types of expenses are not available, for various reasons mentioned above, allocation of funds gets used-up entirely. Complementary food items such as *sukhdi* which are supplied to *Anganwadis* by the government of Gujarat under the Integrated Child Development Service (ICDS) costs Rs. 72 per kilogram and retail price of a fancy 40 gram nutrition bar is Rs. 15. With assured MDM demand for *sukhdi, chikki,* and an occasional nutrition bar, economies of scale are bound to lower their cost of production. A sukhdi or a chikki on a particular day may cost about Rs. 2 for a 50 gm packet and a nutrition bar of about 40 gms would cost at least Rs. 7. If corporate involvement is sought, then such nutritional bars may be offered to the children and probably FMCG firms could partly foot the bill as a gesture of corporate social responsibility. Therefore, supply of packaged food items, at least on a few days, may help maintain accountability in the chain and offer standardised nutritional amounts as it is easy to count delivery of packaged food items.

Offering *sukhdi, chikki,* and nutrition bar may serve many purposes. As described earlier, MDM scheme may be offering different prepared food items each day but there is bound to be repetition of flavours and seasonings. Therefore, offering *sukhdi, chikki,* and nutritional bar twice a week and a seasonal fruit (usually banana is the cheapest) once a week will bring variety to the menu. In addition, this will provide convenience both to children and the authorities in serving the food and they could focus more attention to studies. And, in doing so, one would also ensure that hygienically packed (a banana has a natural hygienic packing!) and nutritious food is delivered and consumed by the recipients. Of course, while packaged fortified bar and fruit can complement the regular meal, nutritional quality of the warm, prepared meal itself can be improved. Better storage and quicker turnover of food grains from FCI godowns may provide better grain quality in terms of safety and nutrition. MDM scheme does mention establishing quality checks. While food inspectors can be employed to check quality of existing meals, policymakers may give a serious consideration to introducing package food. Moreover, looking into future, there is a distinct possibility of introduction of genetically modified (GM) foods in the market. We understand that Golden Rice, a GM variety of rice, is expected to be released in India by 2011 [IRRI, 2009]. Such rice is naturally fortified in terms of nutrients such as beta-carotene. Use of such rice in MDM scheme may improve nutritional delivery to the targeted children. Early studies in India show that knowing the pros and cons of GM foods, consumers are willing to accept such GM foods [Deodhar, Ganesh, and Chern, 2008, Pp. 570-87].

6. Concluding Observations

The concept of implementing mid day meal is almost a century old in India. With early beginnings in Madras Presidency and followed by its introduction in Gujarat and Delhi, in that order, in the post-independence period, today the scheme is being implemented in most states. In fact, the 2007-2008 budget of the central government had allocated about Rs. 7324 crore for this programme. Thus, the scheme is important in terms of its potential for substantially improving the health of the younger generation of the country as also in terms of the enormity of spending of taxpayer's money. In fact, it is also an important instrument to encourage children to attend school. Therefore, it becomes imperative that a comprehensive evaluation of the programme efficacy be undertaken. With this objective, we considered the likely impact of the scheme and its alternatives on children's food consumption as also the quality of the delivered food under MDM. It would also have been an interesting proposition to test the impact of MDM scheme on school attendance and enrolment. However, it would be ideal to gather data on pre and post MDM scheme attendance, enrolment, and drop-out rates. Moreover, since food supply allocation will be linked to attendance, one will have to be circumspect about the moral hazard issue of inflated attendance reporting. To avoid anecdotal impressions from visits to a few schools, one may collect and sift through data on the above parameters from a much larger set of schools for a statistically meaningful exercise.

Using indifference curve analysis we demonstrated that the food stamps alternative or the direct income support is not feasible, for it may lead to adverse consumption choices by the targeted households. This would happen, particularly in countries like India, where educational and awareness levels of the targeted households are low. To address the food quality aspects, we conducted field visits to some of the participating schools from different wards in Ahmedabad. These included visits to three participating schools and an NGO involved in preparation and distribution of meals. We documented our observations and collected food samples from these locations. The collected food samples were subjected to laboratory tests to analyse the nutrition content and food safety aspects of the meals. Our study seems to indicate that the implementation of the scheme may be wanting on the grounds of nutrition delivery, food safety, variety, and the study-time meant for student-teacher engagement.

We suggest certain changes to address the above issues. One option is to engage private agencies which would be expected to follow certain hygiene norms for food preparation. Food inspectors may be deployed to periodically check quality of prepared meals. Moreover, meals could be complemented by giving *chikki, sukhdi,* an occasional nutrition bar, and/or fruits like banana on some days. This will add variety and assured nutrition to the children. Public-Private partnership may be considered for delivery of nutrition bars through food giants such as ITC. Partial substitution of delivery of loose grains by packaged items may also improve accountability in the supply chain. In the near future, possibilities of using nutritionally fortified GM food grains such as Golden Rice may be considered for the mid day meals.

Appendix I
Laboratory Tests[5]

Quasi Hidden Food Safety Attributes: The samples were examined as a whole for its general condition including odour and infestation as well as for the presence of any deleterious material to human health rendering the grain inedible. The contents were mixed and spread out evenly on a flat smooth surface. From this spread a specified quantity was taken. Then, if required with the help of magnifying glass, various items of refraction were picked up by hand and care was taken that

every refraction is accounted for only once. Wevilled and insect damaged or infested grains were separated and counted. The samples were carefully examined for the presence of rodent hair or droppings in the sample. Excess humidity increases possibility of microbial and fungal growth. The grains were initially weighed and then put in the oven at around 60-80˚C for 2 hours. The weight was taken again and moisture content was calculated using standard formula.

Hidden Food Safety Attributes: To estimate presence of uric acid on the surface of grains, which indicated rodent activity, 1 gram grains were soaked in 10 ml de-mineralised double distilled glass water for around 10-15 minutes. These water samples were then used to check the presence of uric acid in samples using Jaffe's reaction, which produced blue colour, which was read on a spectrophotometer at 680 nm. Presence of Aflatoxins in both cooked and uncooked samples was measured by Thin Layer Chromatography. Silica plates were prepared and chloroform extract of food samples were applied on plates after their activation at 110°C for an hour. Different solvent systems were tried and Methanol: Chloroform (95:5) was found to give the best result for separation and identification of Aflatoxin bands. The plates were visualized under ultra violate (UV) light (366 nm). Presence of blue and green fluorescent bands indicated the presence of aflatoxins B and G respectively. Confirmatory tests were carried out to ascertain the presence of aflatoxin. For fungal recovery, Potato Dextrose Agar (PDA) was used and the cultures were incubated for at least 3 days at humid place having lower temperatures (25 ± 2°C.). Colony characteristic of each isolate was observed and noted. Live preparations of fungal colonies were prepared on slides and were observed under the microscope for their identification.

Nutritional Attributes: Total fats were measured using gravimetric method. Petroleum Ether was used to extract total fat. Total weight was expressed in grams percent (gm%). Total proteins were measured using Bradford's method and were expressed in gm%. Extraction of proteins was done in extraction buffer containing phenyl methane sulfonyl fluoride (PMSF). Ash samples of different food items, cooked as well as uncooked grains were prepared at moderately high temperatures by igniting the food materials in crucibles. The ash was then solubilised, *i.e.*, made soluble in water by the action of a detergent or similar agent, in 2 N HCl and centrifuged. The acidic supernatant was used as samples for all the following estimations. Iron estimation was carried out using KSCN (Potassium Thio Cynate), which was read at 478 nm spectrophotometrically. Known concentrations of $FeCl_3$ were used to establish standard curve. Iron was calculated %mg. Calcium estimation was done titrimetrically using EDTA and Erichrome Black T indicator. Iodine contents were estimated by the method established by Anderson *et al.* which uses Cerric Ammounium Sulphate and Arseneous acid. Absorbance was taken at 363 nm. The readings were taken on a spectrophotometer and the contents were calculated in mg%.

NOTES

1. Now this programme is referred to as Supplemental Nutritional Assistance Program (SNAP, 2010). US also has the National School Lunch Program (NSLP), where targeted children in participating schools get priced, reduced-priced, and free lunches depending upon the family income.

2. While the Telgi scam of printing and selling counterfeit revenue stamps and stamp papers may not get repeated, sale of food stamps in secondary market is certainly possible.

3. In case of fuel and fertilisers, the benefits of the existing subsidies on prices are being cornered by non-poor farmers who make substantive use of these inputs. If the government is able to identify the poor, and the subsidy is given in the form of direct income transfers, it will go to the intended beneficiaries. However, having said this, the question remains as to whether or not the poor will use the direct income transfers for its intended use.

4. As per MHRD information, cost of cooking the meal is revised at Rs. 4.33 from April 2011. Three cooks-cum-helpers are provisioned for 100 students for 200 days a year at a salary of Rs. 1000 each. This amounts to Rs. 1.80 per meal per day. The provision for grain delivery is Rs. 75 per quintal which amounts to 37.5 paisa per 500 gm. grain delivery per meal.

All this adds up to Rs. 6.50 per meal.

5. All the methods followed in the tests are BSI recommended methods except the cases where mentioned specifically. Technical assistance in laboratory tests provided by the undergraduate students of biochemistry is acknowledged. Their names are: Ms. Nami Chopra, Ms. Karuna Kolhar, Ms. Foram Kayastha, Ms. Viny Verghese, Ms. Janet D'Sa, Ms. Kruti Shah, Ms. Shailee Joshi, Ms. Devanshi Jhaveri, and Mr. Gajendradhar Dwivedi.

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WTO AND SRI LANKA'S FARM TRADE

Ramphul

The study seeks to examine the impact of the WTO agreement on agriculture (AoA) on Sri Lanka's agricultural trade performance. It is found that under the AoA regime, Sri Lanka's share in the world's total agricultural trade has increased. The importance of farm trade in the country's overall foreign trade has improved. Further, evidence suggests that Sri Lankan agriculture has opened in new economic environment. In new trade order, value of Sri Lankan farm exports has grown faster than that of imports resulting into significant expansion of trade surplus. The normalised trade balance in agriculture has enhanced dramatically.

Furthermore, the study finds that in the emerging liberalised farm trade order Sri Lanka's comparative advantage is much better than other leading farm producers especially in the exports of: tea, copra, coconuts and natural rubber. For food grains Sri Lanka heavily relies on imports. In the WTO trade negotiations, Sri Lanka may press for an effective and substantial cut in developed countries protective measures and trade distorting agricultural subsidies, in order to safeguard and enhance its food production capacity.

Keywords: *WTO, Agreement on Agriculture, Farm Trade, Sri Lanka, India, Pakistan, Bangladesh, Comparative Advantage, Indo-Sri Lanka Free Trade Agreement.*

1. INTRODUCTION

Agriculture has been the most crucial sector of Sri Lankan economy. It is an important source of gross domestic product (GDP) with 11.33 per cent of it originating in this sector in 2006-07. This sector provides employment to 29.40 per cent of the country's total labour force in 2007-08 [Central Bank of Sri Lanka, 2008, Pp. 995-1080]. Besides, the sector is vital for food security, poverty elimination and acceleration in tempo of economic growth in the country as around 70 per cent of the rural population depends on this sector for its livelihoods, surpassing the contribution of any other major sector. In the emerging liberalised farm trade order the sector holds great promise to be a major source of foreign exchange earnings. Moreover, its strong forward—as an important supplier of raw materials for the manufacturing industry—and backward—as a source of income for poor and as a sector using industrial products such as agricultural machinery and fertilisers —linkages within the rural sector and with the other sectors of the economy provide added stimulus for more inclusive growth and faster income generation [World Bank, 2008, Pp. 1-365]. A robust and vibrant food and agricultural system thus, constitutes an important factor in the strategy of overall economic development of Sri Lanka. Any change in agriculture sector has a spill-over effect on the entire Sri Lankan economy.

The world agricultural trading system has seen profound changes during the second half of the 20th century. The treaty on agriculture signed at the ministerial meet on April 15, 1994 by 125 nations including Sri Lanka and the agreement on agriculture (AoA) became effective from 1st January 1995, with the establishment of the WTO. The chief aim of WTO is to improve the welfare of the peoples of the member countries [WTO, 2009, Pp.1-7]. By gradual elimination of imperfections in world agricultural trade, the AoA

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attempts to open up substantial trading opportunities for leading agricultural producers [Ramphul, 2008a, Pp. 113-134].

The trade reform provisions of AoA fall under three main categories. These consist of: (i) domestic support, (ii) market access, and (iii) exports subsidies. AoA requires developed countries to reduce trade-distorting domestic subsidies by 20 per cent of the 1986-88 level over the implementation period of 6 years (1995-2000) while for the developing countries the reduction commitment is 13.3 per cent over the implementation period of 10 years (1995-2005). As notified by Sri Lanka's authorities to WTO and explored by other studies [*e.g.:* Ingco and Kandiero, 2003, Pp. 1-37; Food and Agriculture Organisation (FAO), 2000; WTO, 1995, Pp. 1-107; WTO, 2004, Pp. 1-137] that in terms of domestic support (*i.e.,* product specific support + non-product specific support) Sri Lankan agriculture has been net taxed rather than subsidised right since 1986-88 (*i.e.,* AoA base period for reduction in trade distorting domestic subsidies).

AoA requires that market access to agriculture products is to be governed by only tariff regime. It obligates the member countries to convert all non-tariff restrictions on imports into equivalent level of tariffs. The resultant tariffs are to be reduced by a simple average of 36 per cent with a minimum reduction of 15 per cent per tariff line by 2001 in the case of developed and 24 per cent with a minimum of 10 per cent per tariff line by 2005 in the case of developing countries. All WTO member countries which had bound their tariff rates before Uruguay round are required to maintain current access opportunities, *i.e.,* the quantity of import during the period 1986-88. For tariff-ridden products, where such "current" access had been less than 5 per cent of domestic consumption of the products in question in the base period, an (additional) minimum access opportunity had to be opened on a most-favored-nation (MFN) principle. It was ensured that in 1995, current and minimum access opportunities combined represented at least 3 per cent of the base-period consumption and were gradually increased to 5 per cent of the consumption by year 2001 in developed countries and by 2005 in the developing countries. However, developing countries like Sri Lanka which had not bound their tariff rates before Uruguay round were allowed having ceiling bindings which were not subject to these reduction commitments, and for these ceiling bindings there was no upper limit.

As noted by Athukorala [2000, Pp. 169-193] Sri Lanka embarked on an extensive economic liberalisation process in 1977. The economic gains, from the dramatic unilateral move to replace quantitative restrictions with tariff as the prime tool of trade policy in 1977 and the subsequent tariff reductions, have been substantial. Therefore, there is an unprecedented consensus across all mainstream political groups in the country over the desirability of further moves towards trade liberalisation. After two decades of reforms, Sri Lanka today stands out as one of the most open economies in the developing world [Williamson, 1998]. However, at the time of signing the AoA in January 1995, both high tariffs and quantitative restrictions still remained important deterrents to import trade in Sri Lanka in a number of key agricultural commodities [Athukorala & Kelegama, 1998, Pp. 7-26]. Import duties on 8-digit harmonised system code (HSC) items varied in the wide range of 5 per cent to 100 per cent, with most of the essential food crops clustering at the upper end of the distribution.

In compliance with its commitments under AoA, Sri Lanka has bound all tariffs on agricultural goods at a uniform rate of 50 per cent. As informed by the Sri Lankan authorities to the WTO, it implemented 99 per cent of its agricultural tariff bindings with the entry into effect of the WTO on 1st January 1995. The list of tariff

lines contained about 700 agricultural items including meat, fish, milk, milk powder, fruits, vegetables, nuts, spice, coffee, seeds, sugar, maize, starches, oils and fats, cocoa, pastries, fruit juices and fruit preparations. The bound tariff rate (50 per cent) chosen by Sri Lanka was the lowest not only among the four South Asian WTO member countries but also among all developing countries WTO members [WTO, 1995, Pp. 1-107]. Moreover, in July 1996, following WTO ruling, Sri Lankan authorities abolished import licensing on potatoes, chillies, onions and rice. This was followed by a reduction of import duties on potatoes, chillies and onions from 35 to 20 per cent in November 1996. Furthermore, Sri Lankan authorities decided to apply a two-tier tariff of 10 and 20 per cent (by 1996) and to achieve a uniform 15 per cent tariff by 1997 or 1998. However, this plan was set aside for the time being and the tariff rates for most agricultural commodities in 1999 were 35 per cent, except for tobacco, where tariffs were higher. For specific medicinal crops, the tariffs were at 10 per cent. Besides, tariff duty was waived off in a number of commodities for cost of living considerations. Imports of all seed and planting materials for agriculture were made duty-free and the duty had been waived off on machinery and equipment imported for use in the application of new and innovative technologies in agriculture [FAO, 2000]. In case of rice, until 2000, tariff was 35 per cent plus a national security levy of 4-5 per cent. From 2002 onwards, when world prices were depressed, this was replaced with specific tariff that ranged from Rs. 5/kg to 9/kg except for Rs. 20/kg during 2008-10 (plus 5-6 per cent security tax) [Karunagoda *et al.*, 2011, Pp. 245-263].

In this way, in terms of market access obligation, Sri Lanka has not only maintained the AoA bound rates, but has unilaterally reduced the most-favored-nation (MFN) tariff rates substantially compared to AoA final bound rates [WTO, 2004, Pp. 1-137]. Finally, in case of export subsidies, Sri Lanka has not provided any subsidy to agricultural exports which is prohibited by AoA provisions [WTO, 2004, Pp. 1-137].

The developing countries like Sri Lanka hoped for improving their net farm exports earnings. It is, therefore, pertinent to estimate the impact of AoA on Sri Lanka's agricultural trade. Analysis of agricultural trade performance will lead to formulation of appropriate strategies to grab the advantageous opportunity thrown up by AoA of the WTO.

The AoA in its article XX incorporates the provision to review the experience of member countries regarding its implementation and to begin fresh negotiations for continuing the process of opening up of world agricultural market and reducing distortions.

The committee on agriculture of WTO began renegotiations on agriculture in March 2000. The prospects of the negotiating proposals received by the committee were improved by the outcome of the fourth ministerial conference of WTO, held at Doha (Qatar) November 9-14, 2001. The aim of the negotiations on agriculture is 'to establish a fair and market-oriented trading system through a programme of fundamental reform encompassing strengthened rules and specific commitments on support and protection in order to correct and prevent restrictions and distortions in world agricultural markets' [WTO, 2001]. Fairness is to be achieved through incorporating special and differential treatment for the developing and least-developed countries, and efficiency is to be achieved through improving market access, phasing out all forms of export subsidies and substantially reducing trade-distorting forms of domestic support [Maclaren, 2005, Pp. 229-247]. During Doha round, the members committed themselves for comprehensive negotiations aimed at substantial improvements in market access, reductions in, with a view to phasing out,

all forms of export subsidies and substantial reductions in farm trade-distorting domestic support measures.

A mini-ministerial negotiations meet at WTO was held on July 21-29, 2008, at Geneva to achieve a breakthrough in Doha round which collapsed (Doha round commitment has survived many a collapse before, e.g., Cancun in 2003, the mini-ministerial meet in Geneva in 2006, the G-4 Potsdam meeting in 2007). In the area of agriculture, developing countries, including Sri Lanka, invoked the right of the use of a special safeguard (SSG) to be extended to them, through the special safeguard mechanism (SSM)[1] and special products (SPs).[2]

The text proposed by WTO Director-General, Pascal Lamy, on July 25, 2008, required demonstrable harm to food security, livelihoods and rural development before the SSM could be used, which undermined the rationale of a special safeguard (that action can be taken before serious harm occurs). The United State (US) was willing to set the trigger level at a 40 per cent jump in farm imports (*i.e.*, pre-Doha tariff rates could be exceeded only if the increase in imports in the current year was at least 40 per cent greater than the average for the preceding three years) while developing countries insisted on using SSM at a 10 per cent increase. The developing countries argue that this is inappropriate because once damage is done it is difficult to get farming going again, unlike industry [Baldwin, 2009, Pp. 515-525].

In case of cut in agricultural domestic subsidies, US announced that it would offer to cut its allowable overall trade distorting support (OTDS) to $15 billion. This was dismissed by many developing countries including India, Brazil and Sri Lanka as being inadequate, because the actual applied OTDS of the US has already dropped to about $7-8 billion in 2007-08 [Khor, 2008, Pp. 35-40]. The lowering of the allowable and applied OTDS is also accompanied by rise in the so-called Green Box support which is not a part of OTDS. A large part of the domestic support of the US and EU has shifted to the Green Box [Ramphul, 2007, Pp. 60-77]. Recent studies [*e.g.*, OXFAME, 2005, Pp. 1-28; UNCTAD, 2007, Pp. 1-101] have shown that the Green Box support can also be trade and production distorting because they are more directly linked to production. These subsidies are used for enhancing international competitiveness of the domestic agriculture sector. They affect production and these impacts do generate spill-over effects on other countries because of the wealth and risk effects associated with these subsidies. Besides, developed countries' Green Box subsidies reduce the cost of production in these countries which force developing countries' small-scale farmers out of farming because they become relatively less cost efficient. Moreover, Green Box subsidies provided by developed countries cause excess supply of agricultural products in these countries, which make the producer to dump it into developing economies by cutting prices below the long-run marginal cost, which depress the world market prices. It results in the developing countries being disadvantaged in exports and in competing with imports. The Lamy's draft did not even mention the Green Box.

The ongoing debate over agricultural trade liberalisation focuses on how best to eliminate policy distortions that arise from price supports, producer subsidies, import protection and export subsidies. Although the most recent attempts to reach an agreement under the Doha Development Agenda (DDA) have been unsuccessful to date, the push for greater trade liberalisation is unrelenting. So it seems that further reform of the world agriculture market is inevitable.

An examination of WTO ongoing farm trade negotiations indicates that in the emerging liberalised farm trade order, countries having comparative advantage in producing a commodity

would dominate export in that commodity. Therefore, it is imperative to assess the capabilities of Sri Lankan farmers of becoming competitive exporters of various agricultural commodities.

The rest of the study is organised into four sections. Section II reviews the existing relevant literature, identifies the research gaps and sets out the objectives of the study. Section III discusses the methods of analysis used in the study and mentions the sources of data. Section IV is devoted to assess the performance of Sri Lanka's agricultural trade and to work out Sri Lanka's and other South Asian countries' comparative advantage in farm trade. In the same section, sources of Sri Lanka's overall export growth, position of bilateral farm trade between Sri Lanka and India and determinants of Sri Lanka's farm exports growth are also estimated. The final section summarises the main findings of the study and draws their policy implications.

2. REVIEW OF LITERATURE

There are a few studies which attempt to analyse the implications of AoA on Sri Lankan agriculture. Of these, prominent studies include the following.

Athukorala and Kelegama [1998, Pp. 7-26][3] broaden the understanding about the constraints faced by developing countries in their attempts to comply with Uruguay Round Agreement on Agriculture (AoA) rules through a comparative case study of Sri Lanka in South Asian context. They find that Sri Lanka's policy initiatives so far under the AoA to be unique among the South Asian countries. In a notable departure from the hesitant policy responses of the other countries, Sri Lanka has made use of the window of opportunity provided by the AoA to significantly liberalise agricultural trade as well as to lock in the ongoing trade reform process at low duty levels, and to remove non tariff measures and reduce tariffs on agricultural imports except wheat and wheat flour. It was noted that Sri Lanka had not acquired comparative advantage in wheat production. This move has laid the foundation for further trade liberalisation with the aim of restructuring the agricultural sector in accordance with Sri Lanka's comparative advantage. Kelegama [2003, Pp. 96-140][4] assessed the implications of the Uruguay Round Agreement on Agriculture (AoA) for Sri Lanka. It is found that Sri Lankan export quantities as well as prices have not been significantly influenced by the implementation of the AoA in trading partner countries. However, there has been an increase in import quantities and prices and this can be attributed to liberalisation in these particular agricultural commodities markets. The implementation of the AoA has not resulted in the expected increase in market access for the exports of countries such as Sri Lanka. This may be because of dirty tariffication practices (since AoA requires tariff reduction only on an un-weighted average basis. Many countries took advantage of this by maintaining average levels of tariffs but imposing high level of tariff on their key sectors. For example, some commodities like dairy products, sugar and meat were protected with high level of tariff), the occurrence of tariff escalation, and the use of a range of non-tariff barriers (*e.g.*, use of Sanitary and Phytosanitary measures as a barrier to farm trade) by industrialised countries. Sri Lanka's agricultural trade is now governed predominantly by a progressive tariff regime, but there is still a range of market distorting elements visible within the sector (*e.g.*, the import controls on paddy rice, maize, and wheat). Taking all of these factors into consideration, it is apparent that the overall impact on Sri Lanka's trade and traders during the implementation of the AoA has been minimal.

Kelegama [2007, Pp. 19-41][5] attempted to assess the feasibility of a South Asian common position in future WTO negotiations. In the area of agriculture, it was noticed that the dynamism of the agriculture in South Asia is uneven and requires country wise assessment of needs. For

instance, Sri Lanka supports the Swiss Formula of high tariff cuts for higher tariffs, while India is perhaps opposed to it because of the country's high agricultural tariffs. Moreover, countries in the South Asian region compete with each other to gain export market share in the same markets for the same products. For instance, Sri Lanka competes with India, Bangladesh and Pakistan for market share in the US and EU for apparel and textile. In addition, it was noticed that South Asia cannot afford to place regionalism above multilateralism. Because, the WTO provides the best option in facilitating trade flows while protecting the interests of the economically and politically vulnerable economies.

Weerakoon and Wijayasirsi [2002, Pp. 95-106] investigate the impact of South Asian Regional Cooperation, *i.e.*, SAARC Preferential Trading Arrangement (SAPTA) on the Sri Lankan economy using descriptive measures. They find that most of the preferential tariff concessions offered to Sri Lanka are irrelevant to Sri Lanka's export interests and thus do not generate much benefit. Of the 1,750 concessions offered to Sri Lanka, only a fraction of the total (126) is of export interest to Sri Lanka. However, Sri Lanka's concessions on base metals, chemicals and textile articles are likely to prove beneficial to its partners in South Asia. A significant number of products in these categories are in fact being imported into the country from the region. Given the limited number of concessions and the irrelevance of much of the concessions that have been offered so far under SAPTA and more importantly the limited depth of tariff cuts, it has had no discernible impact on Sri Lanka's trade with the rest of South Asia. Derosa and Govindan [1996, Pp. 293-315] investigate the effects of pursuing SAPTA compared with pursuing more general liberalisation of South Asia's trade relations with the world at large. They found that SAPTA would expand intra-SAARC trade substantially, especially in food commodities. Net trade creation is found to be limited however, owing to extensive trade diversion under SAPTA. In comparison, when SAARC trade relations are liberalized on a most-favored-nation basis food security and economic welfare in South Asia are vastly improved with little or no trade diversion. Thennakoon and Amrit [2007, Pp. 117-140] discussed Sri Lanka's negotiating position at the WTO. It was emphasised that as a food-deficit small economy, Sri Lanka's main concerns on agriculture negotiations included food security, livelihood security and overall rural development aspects.

Rafeek and Samaratunga [2000, Pp. 143-154] assessed competitiveness of Sri Lankan rice in the context of an importable hypothesis (See section 3.11 below.) applying Nominal Protection Coefficient (NPC) and Effective Protection Coefficient (EPC) measures using data for the period 1990-98. It was found that Sri Lankan rice sector was highly protected. Trade liberalisation will lead to decline in rice production. Food and Agricultural Organisation (FAO) [2000] examined Sri Lanka's experience of implementation of AoA comparing trends on values of farm exports and imports before and after WTO. It was found that the farm trade surplus had been on a strongly downward trend during the entire period of 1985-94. This situation improved during 1995-98. FAO [2007, Pp. 1-4] estimated trend on Sri Lankan imports of milk powder for pre and post-WTO periods. It was found that the growth rate of Sri Lanka's imports of milk powder accelerated from 4 per cent during 1985-94 to 4.9 per cent per annum during 1995-2005. One of possible causal factors for surges in imports is the low tariffs being applied to milk powder. Chand and Bathla [2005, Pp. 1-22] compared Sri Lanka's agricultural exports and imports series for pre and post-WTO periods. They reported a favourable impact of WTO on Sri Lanka's farm trade.

World Bank [1996, Pp. 1-39] assessed competitiveness of Sri Lankan non-plantation farm sector in context of an importable hypothesis

using the data for the period 1985-93 applying four standard tools, namely: Nominal Protection Coefficient (NPC), the ratio of the domestic to world price of the product, Effective Protection Coefficient (EPC), the ratio of value added under existing intervention in tradable inputs over value added at the world price, Effective Subsidy Coefficient (ESC), the ratio of value added at domestic prices adjusted for net subsidies on all inputs (tradable and non-tradable) to the value added at border price, and Domestic Resources Cost (DRC), the ratio of the cost of domestic resources (evaluated at shadow prices) to net foreign exchange earnings through import substitution. It was found that major farm crops, namely wheat, rice, chilli, big onions and potato were highly protected with the value of incentive coefficients, viz. NPC, EPC, ESC and DRC well greater than unity. It indicates that, on an average, the barriers to import held the domestic farm prices in Sri Lanka above the imports prices.

Perera [2008, Pp. 1-50] made a quantitative assessment of impact of Indo-Sri Lanka Free Trade Agreement (ISFTA) on macroeconomic variables, welfare and output focusing on Sri Lankan economy using descriptive trade measures and performing simulations applying the Global Trade Analysis Project (GTAP) model Version 6. The descriptive trade measures results indicated that Sri Lanka experienced an unfavourable trade balance against India. Its trade deficit with India widened from $ 542.1 million in 2000-01 to $ 3024.7 million in 2008-09. This has been driven largely by increasing oil prices (which made up almost a third of import value from India in 2008-09) and a fall in Sri Lanka's exports to India (vanaspathi & copper) [Central Bank of Sri Lanka, 2010, Pp. 1-191]. The simulation results demonstrate that industrial sector will be benefited more than agricultural sector due to trade liberalisation between the two countries.

None of the above reviewed study has examined the pattern of Sri Lankan agricultural trade in context of the size of its agriculture and world agricultural trade. Secondly, there is a lack of systematic and comprehensive analysis of the implications of AoA for Sri Lanka's farm trade. The study is an attempt to fill up these gaps in the literature.[6]

Objectives

The study is aimed at the following objectives:

(a) To examine the impact of AoA on Sri Lanka's agricultural trade performance.
(b) To work out Sri Lanka's comparative advantage in the export of various crops.

3. METHODOLOGY

The analysis is carried out for a time span of 21 years, *i.e.*, from 1985-86 to 2005-06. To estimate the impact of AoA on Sri Lanka's farm trade performance a simple before and after approach is used. Accordingly, the period under analysis is divided into two parts, viz. pre-WTO (1985-94) and post-WTO (1995-2005). For both periods, we have applied various robust indicators of farm trade performance, namely: (i) annual compound growth rate, (ii) instability index, (iii) sources of overall exports growth, (iv) trade openness calculated as the ratio of the total farm trade (*i.e.*, exports + imports) to GDP agriculture, (v) net terms of trade, (vi) income terms of trade, (vii) gross terms of trade, (viii) exports required to finance imports bill, (ix) normalised trade balance in agricultural trade, and (x) trade shares. Comparison is made between various indicators of trade performance during ten years period preceding the AoA (1985-94) and during the implementation period of AoA (1995-2005).

To identify the sources of Sri Lanka's overall exports growth, the nominal export growth rate is estimated using a model originally developed by the General Agreement on Tariffs and Trade (GATT) in the 1966 and modified by the World

Bank in 1997. The competitiveness of Sri Lanka's chief farm traded commodities has been assessed in context of both importable and exportable hypotheses (see section 3.11 below). To achieve the goal Nominal Protection Coefficient (NPC) measure has been used.

Sri Lanka's comparative advantage in farm trade has been worked out applying Export Performance Ratio (EPR) as suggested by Ballassa [1965, Pp. 99-124]. Because EPR provides the presence or absence of comparative advantage, comparative study can help in drawing a more realistic conclusion. It is particularly true if similar results are obtained for two or more competitor countries. For the purpose, other South Asian countries have been considered as competitor for Sri Lanka. Accordingly, the same calculation has been made for three other major South Asian farm exporters, namely India, Pakistan and Bangladesh.

The before-after approach is based on a strict ceteris paribus assumption that factors such as exchange rate, GDP agriculture and market structure, etc., remain constant over the pre and post-AoA periods.[7] To deal with some of these deficiencies, linear regression between value of farm exports and its various determinants is performed. Furthermore, to capture the impact of AoA liberalisation effect, we introduce a dummy variable, which takes a value of zero for pre-WTO years (1985-94) and a value of unity for years thereafter (1995-2005). To study the impact of change in trade environment, *i.e.*, Indo-Sri Lanka Free Trade Agreement (ISFTA) the major position of bilateral farm trade between Sri Lanka and India is also analysed using tabular analysis. A brief discussion of the analytical techniques/methods used is in order.

3.1 Determinants of Sri Lanka's Farm Exports

The model used is as follows:

$$Y = f(W, R, G, D) \quad \ldots (1)$$

Y : Dependent variable (Sri Lanka's farm exports, in US$),

W : World agricultural exports (market size, in US$),

R : Sri Lanka's exchange rate in terms of US$,

G : GDP agriculture (size of Sri Lankan agriculture sector, in US$),

D : Dummy variable for WTO regime (its value is equal to zero before 1995 and one thereafter).

To estimate the determinants of farm exports multiple linear regression model is used:

$$Y_t = \alpha + \beta_1 W_t + \beta_2 R_t + \beta_3 G_t + \beta_4 D + e_t \quad \ldots (2)$$

where

α : Intercept term,

e_t: Random residual with zero mean and constant variance; $e_t \sim N(0, \sigma^2)$, while the other expressions are the same as discussed for Equation (Eq.) 1.

All the data series are transformed to the natural logarithm (ln) form to achieve stationarity in variance. Accordingly, Eq. 2 has been transformed as:

$$\ln Y_t = \alpha + \beta_1 \ln W_t + \beta_2 \ln R_t + \beta_3 \ln G_t + \beta_4 D + e_t \quad \ldots (3)$$

Prior to performing econometric analysis, all variables in natural logarithmic form were subjected to Augmented Dickey-Fuller (ADF) [1981, Pp. 1057-1072] unit root test to verify their time series properties. The ADF test results were confirmed by Philips-Perron (PP) [1988, Pp. 335-346] test. The E-Views 7 was used for the purpose. All series were found (I (1)) or integrated of order one. Therefore, first difference (Δ) of natural logarithm was used in estimating the relationship. The model (Eq. 3) is transformed to a first-difference logarithmic model as given below:

$$\Delta \ln Y_t = \alpha + \beta_1 \Delta \ln W_t + \beta_2 \Delta \ln R_t + \beta_3 \Delta \ln G_t + \beta_4 D + e_t \quad \ldots (4)$$

where

$\Delta \ln Y_t = \ln Y_t - \ln Y_{t-1}$, etc.

Since we want to estimate the relationship between Y_t and W_t, G_t, R_t, D, we are going to check whether

Null hypothesis $(H_0): \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$, against the Alternative hypothesis $(H_1): \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq 0$

The assumptions of correct functional form of the model, no autocorrelation, no multicollinearity and homoscedasticity are tested by Ramsey's REST test, Breusch-Godfrey Serial Correlation LM test, Variance Inflation Factor (VIF) and Breusch-Pagan-Godfrey's (BPG) test, respectively. To test the statistical significance of the parameters to be estimated (*i.e.*, β_1, β_2, β_3, and β_4) student's t-statistic has been used. The validity of the model as a whole has been tested applying F-test. The R^2 is also computed to ascertain goodness of fit of the model.

3.2 Annual Compound Growth Rate (ACGR)

To estimate ACGR following equation is used:

$Y = AB^T$

Logarithmic form of the exponential equation:

$\log Y = \log A + T \log B$

where

Y: Dependent variable,

B: 1+g; g = compound growth rate,

T: Time.

The parameters A and B in the model are estimated using Ordinary Least Square (OLS) method.

The ACGR is computed applying following formula:

ACGR = [Antilog (log B)-1]100 ...(5)

Further, to estimate the impact of WTO regime on the growth rate of variable under investigation, we use the following specification:

$$\log Y_t = \log A + r_1 t + r_2 D_t + r_3 D_t t + u_t, \quad \ldots (6)$$

where

Y_t = dependent variable in period t, t = 1 (=1985), t = 2(=1986).

D_t is a dummy variable such that

$D_t = 0$ if $t < 1995$

$= 1$ if $t \geq 1995$

r_1 is instantaneous growth rate before WTO regime, r_2 is the intercept dummy, r_3 is the slope dummy, u_t is the error term assumed to satisfy all the basic assumptions of the classical linear regression model. In this model a change from 0 to state 1, *i.e.*, a change in the value of D from 0 to 1 signifies a policy change, namely the introduction of WTO. Hence r_3 is a measure of the impact of the WTO on the growth rate of variable under consideration. The sum of r_1 and r_3 is used to estimate the ACGR for post-WTO phase. The student's *'t'* test statistic has been used to test the statistical significance of the various parameters of the model.

3.3 Instability Index (II)

The instability in Sri Lanka's farm trade has been estimated measuring the standard deviation of its annual growth rates. This is a unit free and robust measure of instability [Ramphul, 2012]. The index is specified as:

$$I_i = \sigma \Delta \ln X_t \times 100 \quad \ldots (7)$$

where

I_i = instability index, σ = standard deviation, Δ = first difference operator, $\Delta \ln X_t = \ln X_t - \ln X_{t-1}$, t = time, X = variable under investigation, and ln = natural logarithm.

3.4 Nominal Growth Rate (NGR)

Let us define:

$f_1 = W_1/W_0$;

W_1 = World agricultural imports in the current year [*i.e.*, the last year of the sub-period considered],
W_0 = World agricultural imports in the initial year,

$f_2 = (T_1/T_0)/(W_1/W_0)$;

T_1 = Country's agricultural exports in the current year,

T_0 = Country's agricultural exports in the initial year,

$f_3 = (T_0/X_0)/(T_1/X_1)$;

X_1 = Country's total exports in the current year,
X_0 = Country's total exports in the initial year.

Now, the nominal growth rate is computed as per the following formula:

$$G = (R-1)100;\ R = f_1 f_2 f_3 = \frac{X_1}{X_0} \qquad ...(8)$$

where
G: Nominal growth rate

Note that f_1 measures the growth in overall exports due to a general expansion (or contraction) of world market for country's agricultural exports, f_2 measures the growth in exports through an increase (or decrease) in market share for its agricultural exports and f_3 captures the growth in export due to diversification into non-agricultural exports [for details, see GATT 1966, Pp. 23-32; World Bank, 1997, p. 259].

3.5 Net Terms of Trade (NTT)

The net terms of trade indicates the net gain/loss through foreign trade. This measures the number of units of an importable good obtainable by a unit of an exportable good. It is defined as the ratio of the price received for traded goods (export price index) to the price paid for traded goods (import price index). Accordingly,

$$N_{TT} = \frac{P_x}{P_m} 100 \qquad ...(9)$$

where

N_{TT}: Net terms of trade,
P_x : Farm export price index,
P_m: Farm import price index.
If $N_{TT} > 100$, then it indicates that terms of trade is favourable and vice-versa.

3.6 Income Terms of Trade (ITT)

The income terms of trade is an improvement upon the net terms of trade to the extent that it takes into consideration the quantity exported as well. It measures the purchasing power of exports. The income terms of trade is defined as the ratio between the value of exports to imports prices. Accordingly,

ITT = Net Terms of Trade x Volume Index of Exports

More specifically,

$$ITT = \frac{P_x}{P_m} \text{ x } Q_x 100 \qquad (10)$$

where
ITT: Income terms of trade
Qx: Volume index of exports
While the others expressions are same as discussed for NTT.
ITT shows the capacity of the economy to import because $\frac{P_x}{P_m}Q_x$ determines the volume of imports (Qm) that a country obtain with the exports earnings.

3.7 Gross Terms of Trade (GTT)

The gross terms of trade is the ratio of the quantity index of imports to the quantity index of exports of a nation in physical terms, thus the quantity that it receives in exchange for quantity that it sells. Symbolically,

$$GTT = \frac{Q_m}{Q_x} \times 100 \qquad ...(11)$$

where
GTT = Gross terms of trade,
Q_m = Quantity index of imports,
Q_x = Quantity index of exports.

In case, when trade is in balance the GTT will equal to NTT. The GTT is allowing for total amounts paid even when they differ from prices due to trade imbalances that might arise from say reparation payments.

3.8 Normalised Trade Balance (NB)

The normalised trade balance is a net trade indicator. It is defined as:

$$NB = \frac{\text{Net Farm Trade}}{\text{Total Farm Trade}}$$

More specifically,

$$NB = \frac{E - I}{E + I} \qquad ...(12)$$

where
E : Value of agricultural exports,
I : Value of agricultural imports.

The value of this index varies in range $-1 \le NB \le 1$. Negative values mean that the country/industry is a net importer, to the extreme value of -1, which signals that only import takes place in the country/industry considered. Positive values have the opposite meanings (net export positions). Trade balances give a synthetic measure of the degree of disequilibrium of trade flows, while their normalisation is meant to make them suitable for comparisons. The improvement, over time, of the NB suggests improved trade performance of the sector even when the trade balance worsens. This can happen, for example, when we start from a sizeable trade deficit, and the export growth is higher, in percentage terms, than that of imports. In this sense, NBs can show more accurately than simple trade balances the changes that occurred in trade performance. Moreover, in disaggregated analysis, the normalised trade balance is often interpreted as an indicator of trade specialisation. High and positive NBs are recorded for commodities in which either market or policy determinants, or both, make national production competitive in both foreign and domestic markets. Therefore, the NB may be considered an ex post synthetic indicator of the competitive success of national products.[8]

3.9 Export Performance Ratio (EPR)

The export performance ratio (EPR), as suggested by Balassa [1965, Pp. 99-124], identifies comparative advantage or disadvantage a country has for a commodity with respect to another country or group of countries. The EPR is defined as the ratio of the share of a particular commodity in the country's total exports to the share of that

commodity in the world's total exports. The original index of EPR of ith commodity as formulated by Balassa (1965) may be expressed as:

$$EPR_i = \frac{E_i/C_e}{W_i/W_e} \quad ...(13)$$

where

EPR_i : Export Performance Ratio measure of the ith commodity,
E_i : Export of ith commodity from the country,
C_e : Total exports of the country in reference year,
W_i : World total exports of the ith commodity,
W_e : World total exports in the reference year.

If the value of EPR is greater than unity (EPR>1), it indicates that country has comparative advantage in the export of the commodity under investigation and vice-versa.[9] However, EPR suffer from problem of asymmetry as 'pure' EPR is not comparable on both sides of unity, as if the index ranges between zero and one then country is said not to have comparative advantage in a given commodity, while if the value of the index ranges from one to infinity then the country is said to have a comparative advantage. The index is made symmetric, following the methodology suggested by Dalum *et al.* [1998, Pp. 447-467], and the new index is known as revealed symmetric comparative advantage (RSCA). Algebraically it can be expressed as follows:

$$RSCA = \frac{EPR - 1}{EPR + 1} \quad ...(14)$$

The value of this measure ranges between -1 and 1 and is free from the problem of skewness. A commodity is said to have comparative advantage in its exports if the corresponding RSCA value is positive and vice-versa.

3.10 Nominal Protection Coefficient (NPC)

The NPC is a simple and most widely used device for measuring competitiveness of a commodity in the world market. It is the ratio of domestic price to world reference price of the commodity under investigation. NPC helps in measuring divergence of domestic price from the world reference price and thus determines the degree of domestic protection/un-protection of the commodity in question [Adriaan, 1987, Pp. 20-31]. It is defined as:

$$NPC_i = \frac{P_i^d}{P_i^w} \quad (15)$$

where

NPC_i : Nominal protection coefficient of the commodity i,
P_i^d : Domestic price of the commodity i, adjusted for transportation, handling and marketing expenses,
P_i^w : World reference price of the commodity i, adjusted for transportation, handling and marketing expenses.

If the value of Nominal Protection Coefficient (NPC) is greater (smaller) than unity, then the commodity is protected (un-protected) compared to free trade scenario. The value of NPC less than unity indicates that domestic price is less than the world market price and vice-versa.

3.11 Exportable and Importable Hypotheses

The Nominal Protection Coefficient (NPC) of competitiveness is drawn from neo-classical trade theory that primarily relies on comparison of domestic prices with world prices duly adjusted for freight and other marketing costs and trader's margins. The value of NPC has been estimated in context of both exportable and importable hypotheses: (a) importable hypothesis: the foreign product is an actual or potential substitute for the domestic crop in domestic markets, and

(b) exportable hypothesis: the domestic crop is or potentially could be exported to compete in foreign markets.

Under importable hypothesis, domestic commodity competes in the domestic market and we assume that domestic commodity is an efficient import substitute. We first take the cost insurance and freight (CIF) price of commodity, *i.e.*, price that importing country has paid for imports of the commodity under consideration and add to it transportation and handling charges up to the main consumption centre (import parity price), and then compare it with the wholesale price of that commodity at domestic consumption centre. If the domestic whole sale price is smaller (greater) than import parity price, then the domestic commodity is competitive (uncompetitive).

Conversely, under exportable hypothesis, domestic commodity competes in the foreign market and we assume that allocation of more resources for increase in its production for enhancing its exports is socially desirable and beneficial proposition. We first take the wholesale price of the commodity at the domestic production centre and add transportation and handling charges up to the nearest port of embarkation including charges for loading onto the ship, and then compare it with its free on board (FOB) price, *i.e.*, price that country has charged for the export of that commodity/export parity price. If the domestic whole sale prices is less than the export parity price, then the domestic commodity is competitive and vice-versa [Ramphul 2010a, Pp. 1-267].

3.12 Sources of Data

The data on world and Sri Lanka's total merchandise and farm trade, values and quantities of agricultural commodities traded by Sri Lanka, exchange rate of Sri Lankan Rupee (Rs) in terms of US$, exports values of selected agricultural commodities of Sri Lanka and other South Asian countries are obtained from various issues (1988 to 2003) of *FAO Trade Yearbook,* Food and Agriculture Organisation, Rome, Italy, and *Monthly Bulletin,* Central Bank of Sri Lanka, Sri Lanka. The official website of FAO (www.faostat.fao.org) is also used for the purpose.

The value and quantity indices of agricultural exports and imports are obtained from official website of FAO. The external and domestic prices of Sri Lankan farm commodities are taken from *Monthly Bulletin and Annual Report,* Central Bank of Sri Lanka, Sri Lanka. The GDP agriculture in US$ has been obtained from *World Development Report,* an annual publication of the World Bank.

For estimating the value of Nominal Protection Coefficient (NPC), Sri Lanka's actual FOB/CIF prices have been used as world reference prices. For instance, in case of exportable hypothesis, we have used both the domestic and international prices of Sri Lanka's farm commodity. In other words, we compare the domestic price of Sri Lanka's farm commodity with its actual international price (the price paid by the importer). If the domestic whole sale price is smaller (greater) than export unit value–adjusted for expenses of transportation, insurance and loading onto ship –, then the domestic producer is competitive (un-competitive). The alternative world reference price might be hypothetical one, *i.e.*, price of any other producer's commodity traded by other traders which may have quality difference.

These prices are computed from the various issues of *Monthly Bulletin,* Central Bank of Sri Lanka, Sri Lanka. Domestic prices referred to here are the average wholesale prices obtained from relevant issues of *Annual Report,* Central Bank of Sri Lanka, Sri Lanka. The data on bilateral farm trade between Sri Lanka and India are obtained from Department of Commerce, Government of India, official website

(htpp://commerce.nic.in). In the present study, the terms "agricultural exports", "agricultural imports" and "agricultural trade" relate to the definition of agricultural products under the AoA, *i.e.,* it excludes forestry and fisheries products. The exports values are taken at FOB prices and imports values are based on CIF prices. Data on these variables are presented in Appendix 1.

4. RESULTS AND INTERPRETATIONS

The analysis of Sri Lanka's agricultural trade performance, during pre and post-AoA phases, in the light of information generated by various mathematical, statistical and econometric measures is as follows.

4.1 Time Profile of Sri Lanka's Agricultural Trade

We begin analysing the growth in value of Sri Lankan agricultural trade and examine its place in the world's farm trade. A general idea about the impact of AoA on Sri Lanka's agricultural trade can be obtained by comparing its trade performance indicators before and after 1995 when the AoA came into effect. Basic information on Sri Lanka's farm trade for about a decade before and after AoA in terms of annual trade series, net farm trade, annual percentage change, and share of agricultural trade in the country's overall exports/imports and in the world's total farm exports/imports is presented in Table 1. The table depicts that value of Sri Lanka's farm exports which was shrinking in pre-WTO phase, has grown rapidly in post-WTO era. It plummeted from US$ 715.6 million in 1985-86 to US$ 375.5 million in 1994-95. This situation has turned favourable with the implementation of AoA —exports surged sharply. The agricultural exports have leapt substantially—increased from US$ 672 million in 1995-96 to US$ 1381.7 million in 2005-06. Sri Lanka's share in the world's total farm exports has increased from 0.10 per cent in 1994-95 to 0.21 per cent in 2005-06.

In contrast to exports, the value of agricultural imports increased from US$ 354.5 million in 1985-86 to US$ 409.5 million in 1994-95. As a result, agricultural trade surplus turned from US$ 361.1 million in 1985-86 to trade deficit of US$ 34 million in 1994-95. After the coming into effect of the AoA, the agricultural imports have grown at a slower pace than agricultural exports and more slowly than during pre-AoA phase.

Within one year of the implementation of AoA, its trade balance has moved from a deficit to surplus. It expanded from US$ 13.4 million in 1995-96 to its peak of US$ 371.6 million in 2005-06 which has helped in narrowing Sri Lanka's overall trade deficit.

Figure 1 displays that the share of Sri Lanka's total agricultural trade (*i.e.*, exports + imports) in the world's total agricultural trade which dropped in pre-AoA phase, has witnessed an upward trend during post-AoA period. It has increased from 0.10 per cent in 1994-95 to 0.18 per cent in 2005-06. And this increase has mainly come through farm exports. On an average, Sri Lanka's share in global farm trade has improved from 0.17 per cent during per-WTO period to 0.18 per cent during post-WTO period. It indicates the increasing importance of the country in the world's total farm trade.

Figure 1 also shows that the share of Sri Lanka's agricultural trade in its overall merchandise trade has increased from 10.35 per cent in 1994-95 to 15.67 per cent in 2005-06 which showed a downward trend during pre-AoA phase. It can be seen from Figure 1 that during 1998-99 to 2004-05 Sri Lanka's overall merchandise trade has grown faster than farm trade. As a result, average share of farm trade during post-WTO period is still below pre-WTO level. Table 1 exhibits that the share of agricultural exports and imports, in the overall merchandise trade of the country, has climbed up from 11.90 per cent for

Table 1. Time Profile of Sri Lanka's Agricultural Trade

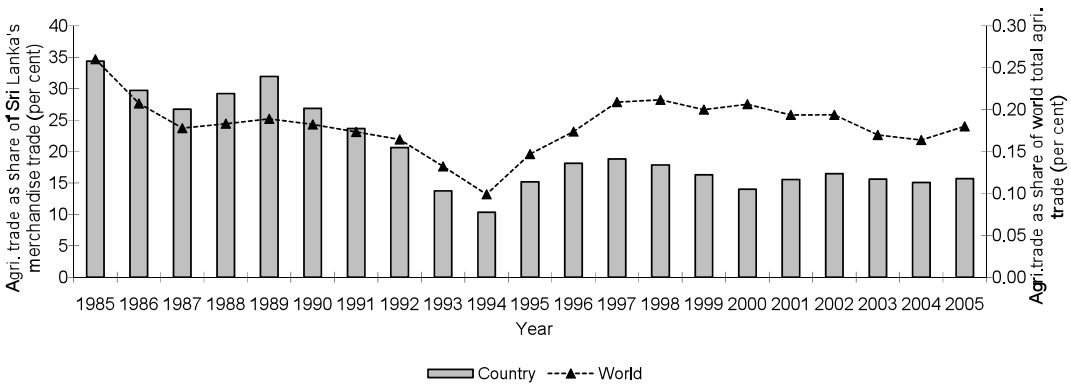
Year	Sri Lanka's agri. exports (million $)[10]	Annual percentage change	Share in Sri Lanka's total exports (per cent)	Share in world's agri. exports (per cent)	Sri Lanka's agri. imports (million $)	Annual percentage change	Share in Sri Lanka's total imports (million $)	Share in world's agri. imports (per cent)	Agri. net trade* (million $)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1985-86	715.6	-20.24	55.2	0.34	354.5	23.89	19.53	0.17	361.1
1986-87	575.7	-19.55	46.91	0.25	338.5	-4.51	18.34	0.16	237.2
1987-88	601.3	4.45	44.37	0.24	303.7	-10.28	14.95	0.12	297.6
1988-89	637.2	5.97	43.65	0.22	426.8	40.53	19.58	0.15	210.4
1989-90	645.7	1.33	41.54	0.21	525.1	23.03	24.89	0.17	120.6
1990-91	745.3	15.43	38.91	0.23	493.7	-5.98	18.33	0.14	251.6
1991-92	661.6	-11.23	33.53	0.2	524.2	6.18	17.25	0.15	137.4
1992-93	634.5	-4.1	25.58	0.18	587.7	12.11	17.06	0.15	46.8
1993-94	441.6	-30.4	15.32	0.13	477.1	-18.82	12.53	0.13	-35.5
1994-95	375.5	-14.97	11.9	0.1	409.5	-14.17	9.24	0.1	-34
1995-96	672	78.96	17.29	0.15	658.6	60.83	13.48	0.14	13.4
1996-97	875.5	30.28	21.55	0.19	767.6	16.55	15.35	0.16	107.9
1997-98	1079.2	23.27	23.75	0.24	856.9	11.63	14.95	0.18	222.3
1998-99	1063.9	-1.42	22.49	0.24	832.5	-2.85	14.15	0.18	231.4
1999-2k	948.7	-10.83	20.65	0.23	771.9	-7.28	12.95	0.17	176.8
2000-01	1002.1	5.63	18.5	0.24	767	-0.63	10.64	0.18	235.1
2001-02	952.4	-4.96	19.77	0.22	718.7	-6.3	12.13	0.16	233.7
2002-03	971.1	1.96	20.67	0.21	807.1	12.3	13.22	0.17	164
2003-04	1012	4.21	19.75	0.19	831	2.96	12.46	0.15	181
2004-05	1143	12.94	19.85	0.18	926	11.43	11.61	0.14	217
2005-06	1381.7	20.88	22.02	0.21	1010.1	9.08	11.24	0.15	371.6
Pre-1995 Ave.	603.4	-7.33	35.69	0.21	444.08	5.2	17.17	0.14	159.32
Post-1995 Ave.	1042.96	8.2	20.9	0.22	828.88	4.69	12.87	0.16	214.08

Note: * net trade = export - import.
Source: Computed on the basis of data available in *FAO Trade Yearbook* (1986-2003) and official website of FAO (www.faostat.fao.org).

agricultural exports and 9.24 per cent for imports in 1994-95 to 22.02 per cent for exports and 11.24 per cent for imports in 2005-06.

A comparison of respective averages before and after 1995 brought out that the average annual percentage change in Sri Lanka's farm exports has turned from being sizeably negative to being sizeably positive and the average annual percentage change in Sri Lanka's farm imports has somewhat declined after 1995. Sri Lanka has, however, not fully recovered the share of farm exports in its total merchandise exports.

Figure 1. Sri Lanka's Agricultural Trade as Share of its Total Merchandise Trade and Global Agricultural Trade



The annual compound growth rates (Eq. 5) of values of Sri Lanka's agricultural exports, imports and net trade are presented in Table 2. The ACGR of value of Sri Lanka's agricultural exports has increased from -4.28 per cent during 1985-94 to 3.99 per cent during 1995-05. For imports, it has declined from 4.71 per cent to 2.57 per cent during the same period. As a result, value of agricultural net trade has expanded at a robust annual average pace of 18.03 per cent during post-AoA phase which was declining at a rate of 19.46 per cent per annum during pre-AoA phase. The results presented in fifth column of Table 2 (Eq. 6) suggest that under the WTO regime growth rates of Sri Lanka's farm exports and trade surplus have increased statistically significantly.

It can be seen from Table 2 that the growth rates of Sri Lanka's farm import are statistically significant during both sub-periods under the study. It indicates a statistically significant rising trend on Sri Lanka's farm imports. The intercept shift dummy is also found statistically significant. However, the decline in growth pace of farm import is insignificant. It may be added here that the upward shift in growth rate of Sri Lanka's farm export is statistically significant which results into statistically significant increase in its net farm exports.

Table 2. Annual Average Compound Growth Rates: Sri Lanka's Agricultural Exports, Imports and Net Trade

(Percentage)

Item	Overall period (1985-2005)	Pre-WTO phase (1985-94)	Post-WTO phase (1995-2005)	*t*-statistic for the impact of WTO regime on growth rate
(1)	(2)	(3)	(4)	(5)
Exports	3.88 (119.45)*	-4.28 (50.48)*	3.99 (82.45)*	3.66* (0.00)
Imports	5.40 (182.69)*	4.71 (51.36)*	2.57 (117.25)*	-1.07(0.29)
Trade surplus	0.77 (30.10)*	-19.46#(15.50)*	18.03 (14.67)*	3.43* (0.00)

Note: # = 1985-86 to 1992-93. * indicates statistical significance of '*t*' value at 1 per cent level. Figures in parentheses in columns 2-4 are '*t*' values. Figures in parentheses in fifth column are probability values

Source: Computed on the basis of data available in *FAO Trade Yearbook*, (1986-2003) and official website of FAO (www.faos-tat.fao.org).

Table 3 presents the instability indices (Eq. 7) for Sri Lanka's farm exports and imports for pooled years, before and after WTO periods, and percentage change in two time periods. The uncertainty indices for Sri Lanka's farm exports and imports values have declined from 15.84 per cent for exports and 17.95 per cent for imports during pre-WTO period to 12.18 per cent for exports and 8.28 per cent for imports during post-WTO phase, respectively. Under WTO regime, Sri Lanka's agricultural imports have become more stable than exports.

Table 3. Instability in Sri Lanka's Farm Trade (In per cent)

Instability in export value			Instability in import value			Percentage change in two periods	
1985-2005	1985-94	1995-2005	1985-2005	1985-94	1995-2005	Export	Import
a	b	c	d	e	f	g=100(c-b)/b	h=100(f-e)/e
19.86	15.84	12.18	16.40	17.95	8.28	-23.11	-53.87

Source: Computed on the basis of data available in *FAO Trade Yearbook*, (1986-2003) and official website of FAO (www.faostat.fao.org).

4.2 Sri Lanka's Agricultural Trade Performance

The performance of Sri Lankan agricultural trade in terms of normalised trade balance, exports required for financing import bill and agriculture trade relative to GDP agriculture is given in Table 4 and Figure 2. A look at Column 3 of Table 4 shows that normalised trade balance

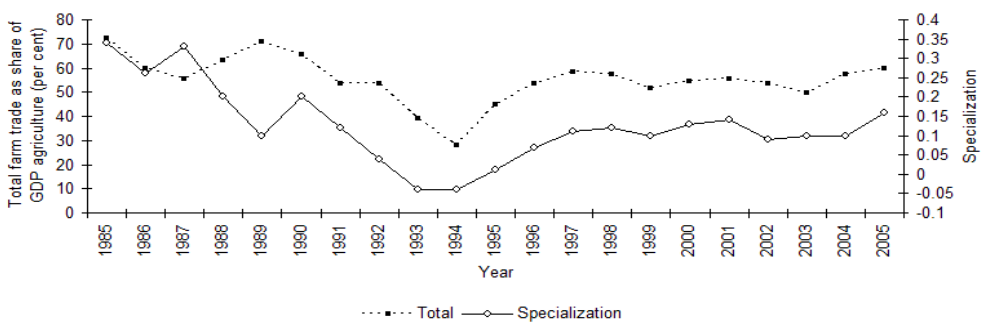
Table 4. Indicators of Sri Lanka's Agricultural Trade Performance

Year	Normalised trade balance in Agriculture	Exports required financing imports (per cent)	Agri. exports as percentage of GDP agri.	Agri. imports as percentage of GDP agri.	Net farm trade as percentage of GDP agri.
(1)	(2)	(3)	(4)	(5)	(6)
1985-86	0.34	49.54	48.19	23.87	24.32
1986-87	0.26	58.8	37.66	22.14	15.52
1987-88	0.33	50.51	36.87	18.62	18.25
1988-89	0.2	66.98	37.82	25.33	12.49
1989-90	0.1	81.32	39.17	31.86	7.32
1990-91	0.2	66.24	39.54	26.19	13.35
1991-92	0.12	79.23	29.9	23.69	6.21
1992-93	0.04	92.62	27.83	25.78	2.05
1993-94	-0.04	108.04	18.84	20.35	-1.51
1994-95	-0.04	109.05	13.36	14.57	-1.21
1995-96	0.01	98.01	22.62	22.17	0.45
1996-97	0.07	87.68	28.61	25.08	3.53
1997-98	0.11	79.4	32.5	25.81	6.69
1998-99	0.12	78.25	32.25	25.24	7.02
1999-2k	0.1	81.36	28.31	23.03	5.28
2000-01	0.13	76.54	30.73	23.52	7.21
2001-02	0.14	75.46	31.5	23.77	7.73
2002-03	0.09	83.11	29.31	24.36	4.95
2003-04	0.1	82.11	27.33	22.44	4.89
2004-05	0.1	81.01	31.66	25.65	6.01
2005-06	0.16	73.11	34.62	25.31	9.31

Source: Computed on the basis of data available in *FAO Trade Yearbook* (1986-2003), *World Development Report* and official website of FAO (www.faostat.fao.org).

(Eq. 12) in agricultural trade has improved dramatically from -0.04 in 1994-95 to 0.16 in 2005-06. The share of agricultural exports required to finance agricultural imports bill has come down under AoA regime. It has declined from 109.05 per cent in 1994-95 to 73.11 per cent in 2005-06. It is clearly and strongly evident from Figure 2 that Sri Lanka's agricultural trade as share of GDP agriculture has increased substantially after the implementation of AoA which was declining in pre-AoA phase—increased from 27.93 per cent in 1994-95 to 59.9 per cent in 2005-06. It indicates that Sri Lankan agriculture has opened. It can be seen from Table 4 that this increase has mainly come through expansion of agricultural exports. As a result, agricultural trade surplus as share of GDP agriculture has increased from -1.21 per cent in 1994-95 to 9.31 per cent in 2005-06. All these evidences here support the hypothesis that under the WTO regime, Sri Lanka has increased its share in the world's total agricultural trade. Next we examine the trends on terms of trade for Sri Lanka's farm sector.

Figure 2. Sri Lanka's Farm Trade as Share of GDP Agriculture and Specialisation in Farm Trade



4.3 Terms of Sri Lanka's Agricultural Trade

The terms of Sri Lanka's farm trade before and after AoA are given in Table 5. The table shows that the net terms of trade (Eq. 9) for Sri Lanka's farm trade, which was deteriorating drastically during the pre-AoA phase, has improved notably from 50.73 in 1994-95 to 122.27 in 1998-99. From 1999-2000 it started to deteriorate and slipped back to 76.33 in 2005-06.

Consistent with net terms of trade, income terms of trade (Eq. 10) has also improved substantially from 43.63 in 1994-95 to 108 in 1997-98 before taking a dip to 98.8 in 1999-2000. Thereafter it showed an upward trend and reached to its peak of 114.49 in 2005-06. It indicates that during post-AoA period Sri Lankan import capacity has improved. The gross terms of trade (Eq. 11) have shown an erratic trend. On an average, quantity exported has grown faster than imports.

Table 5. Terms of Sri Lanka's Farm Trade Pre and Post-AoA Phases

Year	Price index		Volume index		Terms of trade		
	Exports Px	Imports Pm	Exports Qx	Imports Qm	Net (Px/Pm)100	Income Qx(Px/Pm)100	Gross Qm/Qx
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1985-86	57	74	139	62	76.60	106.48	44.60
1986-87	43	69	144	62	62.08	89.40	43.06
1987-88	59	83	111	46	70.89	78.68	41.44
1988-89	65	89	105	61	73.16	76.81	58.10
1989-90	58	97	117	70	59.83	70.00	59.83
1990-91	65	107	121	60	61.21	74.06	49.59
1991-92	63	105	109	65	60.51	65.96	59.63
1992-93	60	103	109	74	58.06	63.29	67.89
1993-94	57	88	79	72	65.10	51.43	91.14
1994-95	44	87	86	62	50.73	43.63	72.09
1995-96	61	114	114	77	53.73	61.25	67.54
1996-97	118	112	79	91	105.03	82.97	115.19
1997-98	125	106	91	108	118.68	108.00	118.68
1998-99	132	108	85	103	122.27	103.93	121.18
1999-2k	108	97	89	106	111.01	98.80	119.10
2000-01	106	99	98	102	107.17	105.03	104.08
2001-02	88	104	111	91	84.57	93.87	81.98
2002-03	76	91	127	117	84.30	107.07	92.13
2003-04	79	100	132	110	78.79	104.00	83.33
2004-05	82	107	141	115	76.92	108.46	81.56
2005-06	85	111	150	119	76.33	114.49	79.33

Source: Computed on the basis of data available in official website of FAO (www.faostat.fao.org).

The ACGR (Eq. 5) of value and quantity indices for Sri Lanka's farm exports and imports are presented in Table 6. The table shows that during both sub-periods value index for Sri Lanka's farm imports exhibits a statistically significant rise in trend. However, the ACGR of value index of Sri Lankan farm imports has declined from 5.2 per cent during 1985-94 to 2.33 per cent during 1995-05, while annual compound growth rate of quantity index of its imports has increased from 2.09 per cent to 3.04 per cent during the same period. It indicates that under the AoA regime farm imports in physical terms have grown faster than in the pre-AoA period but the growth rate of their monetary burden has come down. This is because the growth rate of world prices of agricultural commodities imported by Sri Lanka has dropped after AoA. In case of indices for Sri Lanka's farm imports value and quantity, the intercept shift dummies are found to be statistically significant. However, the slope shift dummies are statistically insignificant.

Table 6. Annual Compound Growth Rates: Indices for Value and Quantity of Sri Lanka's Farm Exports and Imports

Item	Overall period (1985-2005) (per cent)	Pre-WTO phase (1985-94) (per cent)	Post-WTO phase (1995-2005) (per cent)	t-statistic for the impact of WTO regime on growth rate
(1)	(2)	(3)	(4)	(5)
Value index of exports	3.42 (114.36)*	-5.16 (49.77)*	3.04 (82.84)*	3.64 * (0.00)
Value index of import	5.62 (176.16)*	5.20 (50.64)*	2.33 (116.84)*	-1.33 (0.19)
Quantity index of exports	0.07 (135.69)*	-4.94 (83.20)*	5.16 (75.96)*	5.71* (0.00)
Quantity index of imports	4.24 (235.79)*	2.09 (73.37)*	3.04 (115.07)*	0.55 (0.58)

Note: * indicates statistical significance of '*t*' value at 1 per cent level. Figures in parentheses in columns 2-4 are '*t*' values. Figures in parentheses in fifth column are probability values.
Source: Computed on the basis of data available in official website of FAO (www.faostat.fao.org).

During the post-AoA phase quantity index of farm exports has grown at a higher pace than value index of farm exports. It implies that on an average the growth rate of prices of agricultural commodities exported by Sri Lanka have slowed during post-WTO phase. For value and quantity indices of Sri Lanka's farm exports, the estimated values of dummy variable for impact of WTO regime on growth rate (r_3 in Eq. 6) are found statistically significant at 1 per cent level. This result suggests that under WTO regime growth rates of these variables have increased significantly. We now turn to decompose the growth in Sri Lanka's total merchandise trade.

4.4 Decomposition of Sri Lanka's Total Merchandise Exports Growth

The nominal growth rates (Eq. 8) of Sri Lanka's total merchandise exports during pre and post-AoA periods along with their decomposition by sources are presented in Table 7.

Table 7. Decomposition of Sri Lanka's Overall Export Growth

Factor	Overall period (1985-2005)*	Pre-AoA phase (1985-94)*	Post-AoA phase (1995-2005)*
(1)	(2)	(3)	(4)
$f_1 = W_1/W_0$	2.872	1.832	1.376
$f_2 = (T_1/T_0)/(W_1/W_0)$	0.581	0.345	1.495
$f_3 = (T_0/X_0)/(T_1/X_1)$	2.584	3.782	0.751
$R = f_1f_2f_3 = X_1/X_0$	4.312	2.393	1.545

Note: * = two years' averages are used as initial and current points to reduce the influence of a single year outlier.
Source: Computed on the basis of data available in *FAO Trade Yearbook* (1986-2003) and official website of FAO (www.faostat.fao.org).

For ready reference, we reproduce here the model:

$f_1 = W_1/W_0$, $f_2 = (T_1/T_0)/(W_1/W_0)$;
$f_3 = (T_0/X_0)/(T_1/X_1)$;

$$G = (R-1)100; R = f_1f_2f_3 = \frac{X_1}{X_0}$$

where
G = Nominal growth
W_1 = World agricultural imports in the current year [i.e., the last year of the sub-period considered],
W_0 = World agricultural imports in the initial year,
T_1 = Country's agricultural exports in the current year,
T_0 = Country's agricultural exports in the initial year,
X_1 = Country's total exports in the current year,
X_0 = Country's total exports in the initial year.

The table displays that Sri Lanka's total merchandise exports during the pre-WTO period (1985-94) have grown by 139 per cent [(R-1) × 100] and during the post-WTO period (1995-2005) by 54 per cent [(1.54-1) × 100].

The decomposition of growth in Sri Lanka's overall exports suggests that during the pre-AoA phase the bulk of total merchandise export growth is mainly supported by diversification into non-agricultural exports (f_3). Under the AoA regime, growth in overall exports through an increase in market share for its agricultural exports (f_2) has dominated the other two sources of nominal growth rate, although the latter two, namely a general expansion of world agricultural market (f_1) as well as increased share of Sri Lanka's

agricultural exports in Sri Lanka's total exports (f_3) have also been significant. It can be inferred from the results presented in third row of Table 7 that under WTO regime the growth rate of world farm imports has declined. It may partially be attributable to: (a) use of sanitary and phyto-sanitary measures (health and safety regulations), technical barriers to trade (the TBT Agreement) and trade-related aspects of intellectual property rights (the TRIPS Agreement) as trade barriers, (b) slowdown in growth rate of world agricultural GDP, (c) decline in prices of farm commodities, (d) tariff peaks, *i.e.,* maintaining average levels of tariffs but imposing high tariff on key sectors, (e) continuation of domestic policy distortions and high support in many OECD countries, and (f) tariff escalation on agricultural and agro industrial products [Ramphul, 2010a Pp. 1-267]. Furthermore, as pointed out by Josling [2009, Pp. 245-282] that agricultural trade accounted for a small and declining share of global merchandise trade. But its share in total trade disputes has been large. Since the establishment of the WTO a large number of disputes have dealt with agricultural and food trade issues. Agricultural exports now make up to 8 per cent of global exports. Of 367 requests for consultations made to the Dispute Settlement Board (DSB) of the WTO, 100 have primarily been about agricultural trade, a share of 27 per cent.

An analysis of data (available on WTO's official website) on total dispute settlement cases with WTO's DSB brings out that Sri Lanka, on February 23, 1996, has put only one request consultation with Brazil concerning Brazil's imposition of countervailing duties on Sri Lanka's export of desiccated coconut, coconut and milk powder. It may be noted here that desiccated coconut, coconut and milk powder don't constitute a major share in Sri Lanka's total farm exports as shown in Table 8. From our forgoing analysis it may be concluded that, perhaps due to better quality, Sri Lanka's farm exports have not suffered from trading partners disguised protectionist policies like other countries. This may be one of the plausible casual factors for increase in Sri Lanka's share in global total farm trade under WTO regime. Further, during the later period the pattern of the world farm trade (relative shares of different countries) changed which may have benefited Sri Lanka's agricultural trade. For example, the share of developing countries (including Sri Lanka) in the world's total farm exports has increased from 31.63 per cent in 1994-95 to 33.56 per cent in 2004-05. The markets of developing countries have been becoming increasingly important for their own agricultural exports. During 2002-05, developing countries have become net agricultural exporters [Ramphul, 2010a].

A further scrutiny of data presented in Table 8 reveals that Sri Lanka's farm exports are dominated by tea. Its major tea import partners are developing countries which have liberalized their trade policies under WTO regime. It has benefited Sri Lanka's farm exports. Furthermore, world prices of tea have exhibited a rising trend —global tea's export unit value has increased from $1.95 per kg in 1994-95 to $2.08 per kg in 2005-06. It may partially be due to the increased demand for tea arising from increasing population and per capita incomes. It may be added here that Sri Lanka's share in the world's total tea exports has increased from 10.04 per cent in 1994-95 to 22.45 per cent in 2005-06. The openness (measured as the ratio of quantity exported to the quantity produced) of world tea market has increased from 40.7 per cent to 46.95 per cent during the same period.

4.5 Composition of Sri Lanka's Farm Trade

The share of different commodities in Sri Lanka's agricultural exports and imports, and their quantities and unit values are presented in Tables 8 and 9. Table 8 exhibits that under the

AoA regime, the importance of some commercial crops, namely tea, copra, pepper and pineapple in Sri Lanka's agricultural exports basket has shot up.

Table 8. List of Sri Lanka's Major Agricultural Exports Items

Commodity	Pre-AoA phase (1993-95)				Post-AoA phase (2002-04)			
	Value (000, $)	Quantity (Metric tonne)	Unit value (000, $/tonne)	Share in value of total agri-cultural exports (percentage)	Value (000, $)	Quantity (Metric tonne)	Unit value (000, $/tonne)	Share in value of total agri-cultural exports (percentage)
	a	b	c = a/b		d	e	f = d/e	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Rice	3544	15835	0.224	0.87	1157	2465	0.469	0.12
Coconut	2864.5	13934.5	0.206	0.70	6719.5	22241	0.302	0.68
Coconut dry	18844.5	22746.5	0.828	4.61	23740	26405.5	0.899	2.39
Pineapple	291.5	521.5	0.559	0.07	1728	2159.5	0.800	0.17
Pepper	4346	3441	1.263	1.06	12770	7295.5	1.750	1.29
Tea	234223	124919.5	1.875	57.33	635205	295070	2.153	64.06
Copra	2138	3186.5	0.671	0.52	10057.5	13711.5	0.734	1.01
Natural rub-ber	39058	39622	0.986	9.56	29484.5	33585.5	0.878	2.97
Bran and mill-ing product	9700	168500	0.058	2.37	14304	172813.5	0.083	1.44
Tobacco	22312	2724.5	8.189	5.71	31375.5	2116.5	14.824	3.16
Share of these commodities in total value of agricultural exports (percentage)				82.81				77.31

Source: Computed on the basis of data available in *FAO Trade Yearbook* (1986-2003), official website of FAO (www.faostat.fao.org) and Annual Report, Central Bank of Sri Lanka, Sri Lanka.

In absolute terms, export value of all commodities (except rice and natural rubber) has increased. The highest growth is observed for tea. Its export value has increased more than twofold with the beginning of AoA. In percentage terms, highest growth is recorded for pineapple — 492.8 per cent increase. In contrast, the share of selected traditional exportable items like natural rubber, tobacco, bran and milling products has declined. Export of natural rubber has declined both in absolute and relative terms over the years therefore, its total export earnings has declined significantly. This decline may partially be attributable to increase in domestic prices of natural rubber and domestic demand because of improvements in rubber based product industries (*e.g.*, tyres, tubes, hot water bottles, auto parts, gloves, balloons, boots, shoe soles, jar seals, carpets, mattresses, etc.).

The decline in export of rice came through decline in its quantity rather than unit value, while the export of natural rubber came down through fall in both unit value and quantity exported. However, Sri Lanka is a net exporter of natural rubber with an export surplus of $ 22.88 million during 2002-04.

A comparison of unit values of Sri Lanka's major exports during 1993-95 and 2002-04 indicates that the unit values of all items (except natural rubber) have jumped up. The highest

growth is recorded for rice, *i.e.*, 109.38 per cent. The increase in value of tobacco export is derived from rise in its unit value while its quantity exported has dropped. Its unit value has increased by 81 per cent while export quantity declined by 22.32 per cent. As a result its export value has increased by 40 per cent. In case of tea, quantity exported has grown faster than unit value. The post AoA increases in the unit export values may be either due to AoA or due to the increased demand for these commodities arising from increasing population and per capita incomes, or both AoA and the exogenous increase in demand for these commodities. One is not able to come to such an unequivocal conclusion without further analysis.

Table 9. List of Sri Lanka's Major Agricultural Imports Items

Commodity	Pre-AoA phase (1993-95)				Post-AoA phase (2002-04)			
	Value (000, $)	Quantity (Metric tonne)	Unit value (00, $/tonne)	Share in value of total agri-cultural imports (percentage)	Value (000, $)	Quantity (Metric tonne)	Unit value (00, $/tonne)	Share in value of total agri-cultural imports (percentage)
	a	b	c = (a/b)10		d	e	f = (d/e)10	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Milk	43031.5	n.a.	n.a.	9.71	113247	n.a.	n.a.	13.90
Wheat	12742.5	887600	0.14	28.74	134640	972800	1.38	16.53
Rice	25919	106870	2.43	5.85	12778.5	63520	2.01	1.57
Potatoes	3557.5	6175.5	5.76	0.80	9194.5	42178.5	2.18	1.13
Pulses	22087.5	56787	3.89	4.98	43807	124695	10.31	5.38
Onion	5697.5	23476	2.43	1.29	21481	127060	1.69	2.64
Apple	1296.5	2046.5	6.34	0.29	8082	21065.5	3.84	0.99
Sugar	8599	259875	0.33	19.40	116120	537570	2.16	14.25
Tea	2585	2144.5	12.05	0.58	9582	5025.5	19.07	1.18
Pimento	2103	2647	7.94	0.47	19570.5	24975	7.84	2.40
Tobacco	17816	1363	130.71	4.02	39209.5	3358	116.76	4.81
Natural rubber	5	1	50.00	0.00	6595	6701.5	9.83	0.81
Cotton lint	15504.5	10162.5	15.26	3.50	7402.5	6258.5	11.83	0.91
Palm oil	11412	25733.5	4.43	2.57	37834	87139.5	4.34	4.64
Palm kernel oil	2678.5	4604.5	5.82	0.60	21901.5	48936.5	4.47	2.69
Share of these commodities in total value of agricultural imports (percentage)				82.81				73.82

Source: Computed on the basis of data available in *FAO Trade Yearbook* (1986-2003), official website of FAO (www.faostat.fao.org) and *Annual Report*, Central Bank of Sri Lanka, Sri Lanka.

Sri Lanka's agricultural export has been powered by a single commercial crop, namely tea which represented 64.06 per cent of total agricultural exports during 2002-04.[11] In 2008-09, the major markets for Sri Lankan tea were: UAE (15.9 per cent), Russia (14.8 per cent), Iran (10.5 per cent), Syria (8.8 per cent), Turkey (5.2 per cent), Jordan (4.5 per cent), Iraq (3.9 per cent) and Japan (3.2 per cent) [Sri Lanka Tea Board, 2008, Pp. 1-8]. In case of natural rubber major buyers were: USA, Belgium, UK, Germany and France.

As is clearly evident from Table 9, Sri Lanka's chief agricultural import items are: wheat, milk, sugar, and pulses. During the post-AoA phase, the shares of wheat, rice, sugar and cotton lint in value of total agricultural imports have declined while the shares of milk, onion, pimento, tobacco,

natural rubber, potato and palm oil have increased.[12]

Imports of rice and cotton lint have declined in both absolute and relative terms and these reductions have come through fall in both unit value of imports and quantities imported. In absolute terms imports of all others commodities increased both in quantity and value terms. Under the AoA regime, the unit values of imports of wheat, pulses, tea and sugar have increased while these have declined for potato, rice, palm oil, cotton lint, natural rubber, onion, apple and palm kernel oil. Among Sri Lanka's major imports items, shown in Table 9, except for rice and cotton lint where the values of imports have declined, increases in the amounts of imports are derived from increases in quantities imported. Import of milk has shot up suddenly. The imports of food products are substantial and have increased steeply. It indicates Sri Lanka's increasing import dependency for food grains. It has serious consequences for food security. For instance, a crop failure in major producing countries, diversion of major agricultural produce such as sugar, maize, wheat, corn and edible oil to bio-fuel production due to high oil prices and increase in demand for food grains, generated from rapid economic growth in emerging economies, etc., can create food inflation in Sri Lanka.

Sri Lanka is a net food importing country. In 2005-06, food exports represented only 30.51 per cent of food imports. Its main food import items are wheat, milk, sugar and pulses which together accounted for 50.06 per cent of total agricultural imports during 2002-04. Sri Lanka spent US$ 364 million on the imports of sugar, milk and wheat during 2002-04. Increase in the imports of milk, palm oil, wheat and pulses may be because of increase in their demand on account of higher growth rates of population and per capita incomes. Increase in imports of sugar and potato may partially be due to decline in their domestic production.

An examination of imports and exports structure suggests that Sri Lanka's agricultural imports are widely diversified. In contrast to imports, agricultural exports are concentrated on a few items. It suggests the need for more diversification of farm exports in order to obtain further benefits of farm trade liberalisation. Let us assess the competitiveness of Sri Lankan agriculture.

4.6 Competitiveness of Sri Lankan Agriculture

In Sri Lanka, the major exported crops are: tea, rubber, copra and coconut. During 2002-04, these commodities together accounted for 71.11 per cent of Sri Lankan total farm exports. The competitiveness of these chief exportable commodities is assessed in the context of an exportable hypothesis by using Nominal Protection Coefficient (Eq. 15) and results are presented in Table 10. It can be seen from Table 10 that Sri Lanka has competitiveness in export of coconut but it loses competitiveness in case of coconuts oil. It indicates the inefficiency in oil processing industry. It suggests the need to generate greater value added within the country.

The value of NPC less than unity for tea indicates that Sri Lanka is an efficient producer of tea. These results, indicating Sri Lanka's competitiveness in tea, are consistent with an earlier study [*i.e.,* World Bank, 1996]. In case of copra, competitiveness is rather poor. Sri Lanka has lost its competitiveness, in recent years, in rubber with the value of NPC greater than unity. It may partially be attributable to faster growth in domestic prices of rubber than world prices.

Table 10. Sri Lanka's Farm Commodities NPC under Exportable Hypothesis

Year	Tea	Coconuts oil	Desiccated coconuts	Rubber	Copra
(1)	(2)	(3)	(4)	(5)	(6)
1995	0.713	0.845	0.922	0.844	0.924
1996	0.752	1.116	0.965	0.838	1.084
1997	0.761	1.080	0.924	0.725	1.065
1998	0.736	0.920	0.939	0.689	0.957
1999	0.717	0.981	0.936	0.816	0.985
2000	0.742	0.911	0.825	0.784	0.862
2001	0.696	1.101	0.931	0.805	1.025
2002	0.697	0.978	0.934	0.969	0.929
2003	0.681	0.836	0.929	0.875	0.920
2004	0.733	0.980	0.996	1.000	0.919
2005	0.713	1.045	0.951	1.008	0.935
2006	0.717	0.998	0.922	1.078	0.913
2007	0.774	1.090	0.950	1.009	1.059

Source: Computed on the basis of data available in *Annual Reports and Monthly Bulletin*, Central Bank of Sri Lanka, Sri Lanka (2004-08).

In order to assess the implications of free import regime as envisioned under current global farm trade talks in WTO negotiations, competitiveness of Sri Lankan major imported farm commodities, namely rice and sugar, has been measured for most recent years in the context of an importable hypothesis using Nominal Protection Coefficient (Eq. 15).[13] The results are presented in Table 11. The table shows that during most of period under investigation both rice and sugar are found price uncompetitive with the values of NPC generally greater than unity. It means that Sri Lankan food crops cannot survive in a free import regime. As we have already noticed that Sri Lanka has lack of self-sufficiency in food grains. This situation can be improved by providing incentives to farmers for food grains production. Increase in world prices of food grains resulting from withdrawal of domestic support by developed countries, in due course, [Fabiosa *et al.*, 2005, Pp. 317-335] can enhance the competitiveness of Sri Lanka's food crops on one hand and can discourage the cheap food imports on the other. In this way establishment of a fair and market oriented agricultural trading system can strengthen Sri Lanka's food security base by increasing food production capacity and farmers incomes. Increase in domestic food grains production may also control the domestic food inflation.

Table 11. Sri Lanka's Farm Commodities NPC at Importable Hypothesis

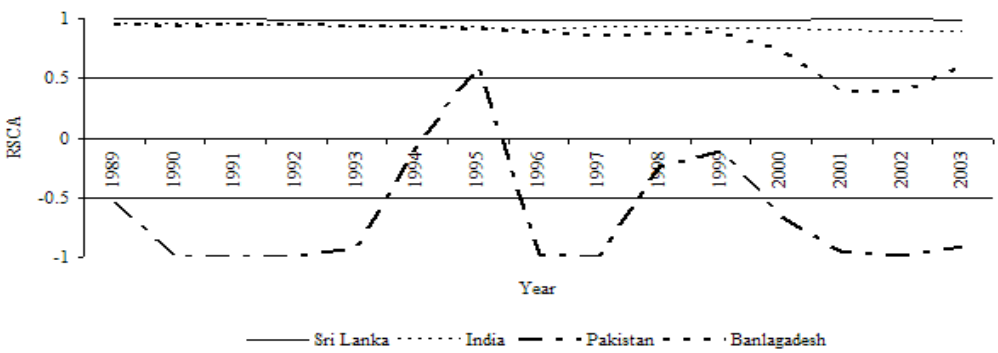
Commodity	2000	2001	2002	2003	2004	2005	2006	2007
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Rice	1.078	1.362	1.020	1.034	0.875	1.038	0.978	1.165
Sugar	0.976	0.986	0.991	0.986	1.000	0.984	0.988	1.001

Source: Computed on the basis of data available in *Annual Reports and Monthly Bulletin*, Central Bank of Sri Lanka, Sri Lanka (2004-08).

4.7 Comparative Advantage of Sri Lanka in Agricultural Exports vis-à-vis South Asia

The estimated revealed symmetric comparative advantage (RSCA) indices (Eq. 14) for tea for Sri Lanka and other major South Asian exporters, namely India, Bangladesh and Pakistan, have been presented in Figure 3.

Figure 3. Trends in Revealed Symmetric Comparative Advantage (RSCA) Estimates of Tea Exports from Sri Lanka and other South-Asian Countries

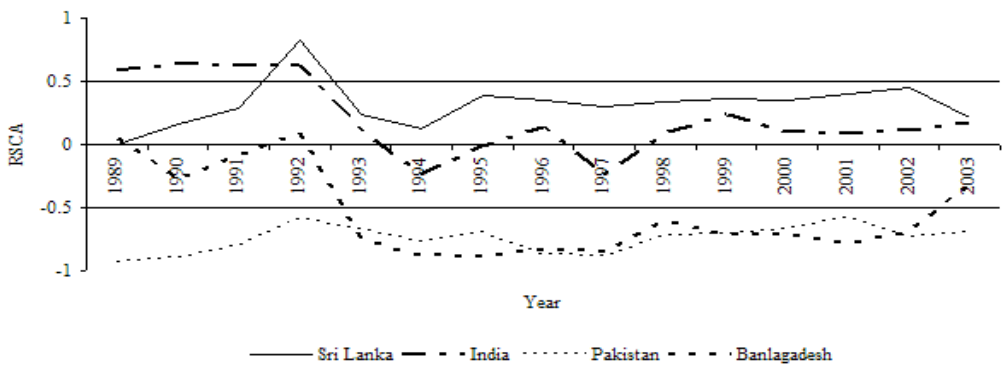


The figure shows that Sri Lanka has maintained its prime status as the world's largest exporter of tea through the study period, mainly through its comparative advantage in the international markets. Throughout the study period, Sri Lanka has revealed its comparative advantage in this sector with notably higher values of RSCA. Sri Lanka did not suffer any setbacks in this commodity. The RSCA for Sri Lanka tea exports was 0.994 in 1989-90, 0.984 in 1994-95 and was more and less stable in the succeeding years and stood at 0.989 in 2003-04.[14]

India and Bangladesh are immediate competitors for Sri Lanka for tea exports. But Bangladesh has not maintained a consistent level of comparative advantage as is evident from occasional dipping of its RSCA estimates. However, the RSCA estimates of Pakistani tea exports were not only negative in most of years but also faced high inter-year fluctuations. Even though the present trend is in favour of Sri Lanka, it should not be forgotten that the competitors were constantly trying to improve their positions and Sri Lanka should aggressively pursue efforts to maintain the pace. These results, indicating that Sri Lanka's comparative advantage in export of tea is much better than other players, are consistent with an earlier study [*i.e.*, Shinoj and Mathur, 2008, Pp. 60-66].

A brief perusal of the RSCA estimates presented in Figure 4 reveals Sri Lanka's comparative advantage in tobacco exports.

Figure 4. Trends in Revealed Symmetric Comparative Advantage (RSCA) Estimates of Tobacco Exports from Sri Lanka and other South-Asian Countries

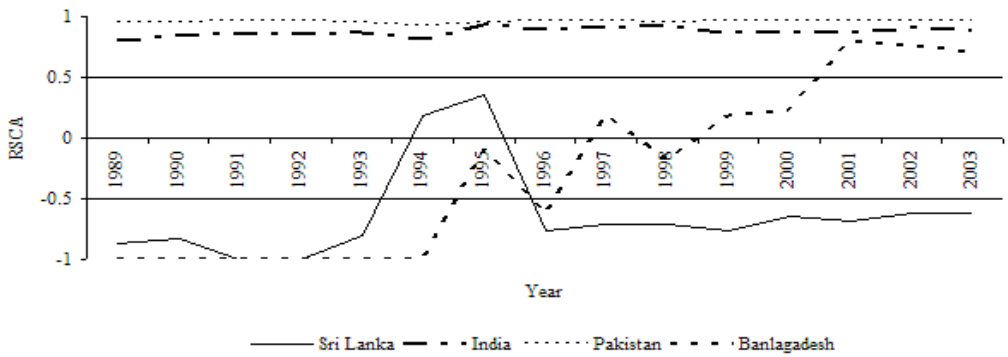


Sri Lankan tobacco exports showed varying levels of comparative advantage during different years of the study period. In 1989-90, estimated value of RSCA was -0.003 which improved to 0.822 in 1992-93 but dropped to lowest value of 0.122 in 1994-95. It further increased to 0.454 in 2002-03. Until 1991-92, India out performed Sri Lanka, however, from 1992-93 onward, Sri Lanka's status remained better than its major South Asian competitors. For India, the index ranged from 0.638 to -0.240 during the period 1989-90 to 2003-04 while, for Bangladesh it varied between 0.055 to -0.847 during the same period. For Pakistan, it was in much lower range of -0.574 to -0.941 during the same period.

The results presented in Figure 5 clearly depict that Sri Lanka experiences a comparative disadvantage in export of rice in all years under consideration and has negative RSCA values.

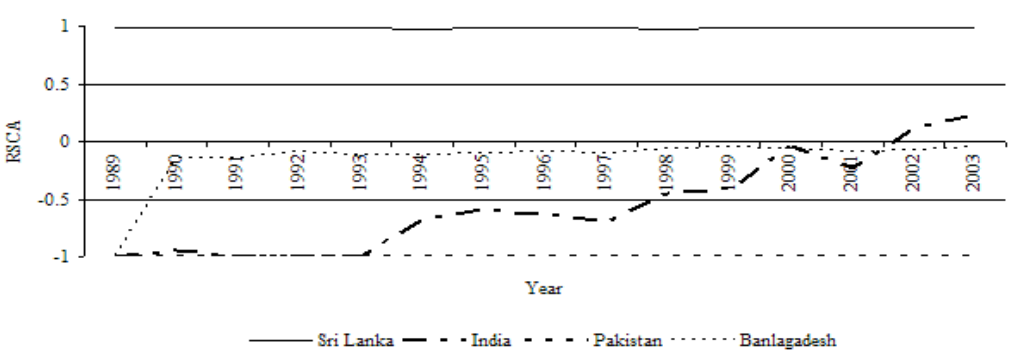
The RSCA estimate for 1989 was -0.862 which points towards a quite unfavourable status of Sri Lankan rice exports in the global market. This situation has hardly improved over the years, and RSCA value was below zero (-0.621) even in 2003-04. Rice exports from Pakistan exhibited a distinct advantage over all other South Asian countries.[16] Indian rice was immediate competitor for Pakistan. Bangladesh was found to have significantly improved its status with an increase in the value of RSCA from -1 in 1989-90 to 0.715 in 2003-04. Given the current status, considerable efforts are needed to make Sri Lanka a competitive exporter of rice in the years to come. It may be added here that over the period Sri Lanka's rice consumption has increased considerably but it has been out-paced by growth in its production.

Figure 5. Trends in Revealed Symmetric Comparative Advantage (RSCA) Estimates of Rice Exports from Sri Lanka and other South-Asian Countries



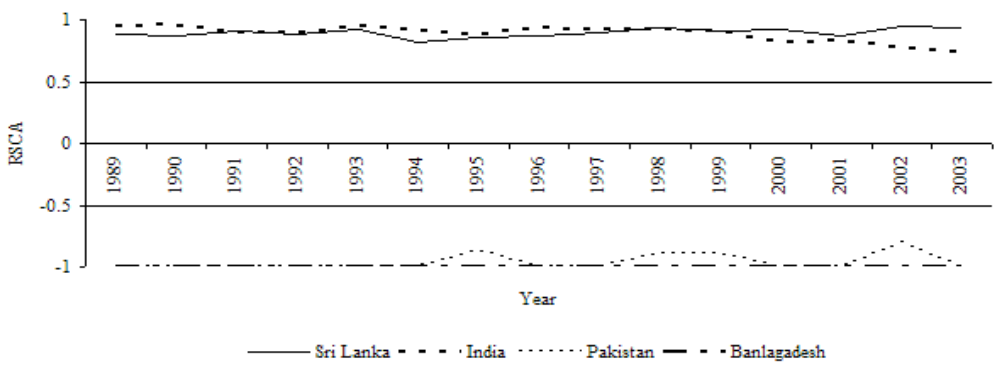
Sri Lanka's status as a leading exporter of coconuts has remained unabated throughout the period under study and it can be attributed to the high comparative advantage enjoyed by Sri Lanka in relation of other players as shown in Figure 6. The RSCA estimates of Sri Lankan coconuts exports are as high as 0.989 in 1989-90, and till 2003-04, Sri Lanka has not face any notable external challenges. The RSCA estimates of other South Asian coconuts exporters like India, Pakistan and Bangladesh were much lower, underlining Sri Lanka's supremacy. Since 2002, India has also acquired comparative advantage in coconuts exports.

Figure 6. Trends in Revealed Symmetric Comparative Advantage (RSCA) Estimates of Coconuts Exports from Sri Lanka and other South-Asian Countries



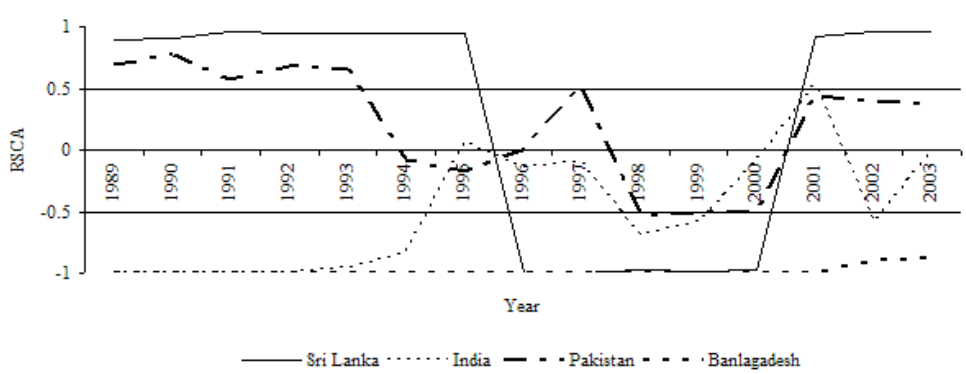
For the period 1989-90 to 2003-04, Sri Lanka is found to have a comparative advantage in pepper exports in all years under investigation as is obvious from positive value of RSCA. In 1989-90, the value of RSCA was 0.886 which fell to 0.821 in 1994-95 as shown in Figure 7. After the implementation of AoA, it started to improve and increased from 0.857 in 1995-96 to 0.930 in 2003-04. In pepper exports, India is the major competitor to Sri Lanka. India also followed a similar trajectory with gradual erosion in its comparative advantage. However, Pakistan and Bangladesh did not enjoy comparative advantage throughout the study period.

Figure 7. Trends in Revealed Symmetric Comparative Advantage (RSCA) Estimates of Pepper Exports from Sri Lanka and other South-Asian Countries



It can be seen from Figure 8 that Sri Lanka's comparative advantage in export of bran and milling products seems to have dwindled during the initial period of implementation of the AoA.

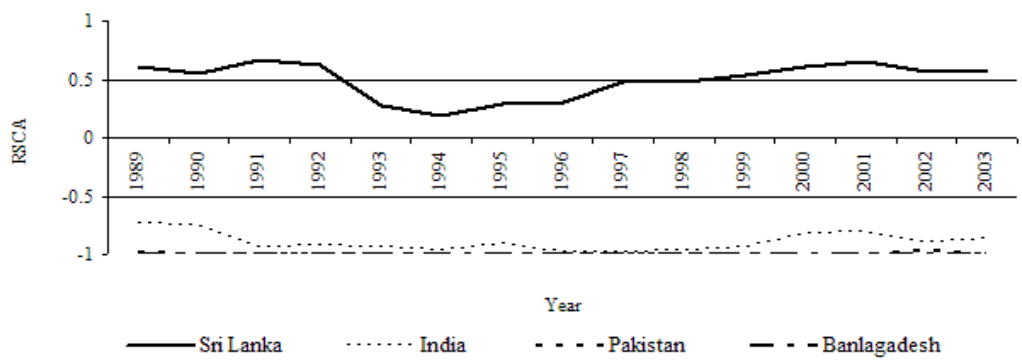
Figure 8. Trends in Revealed Symmetric Comparative Advantage (RSCA) Estimates of Bran and Milling Products Exports from Sri Lanka and other South-Asian Countries



The period which followed witnessed Sri Lanka losing its advantage with Pakistan bypassing it. However, a reversal of role was observed in 2001-02, when its RSCA value turned from -0.972 in 2000-01 to 0.918. From 2001-02 onward RSCA value has shown an upward trend. An erratic trend was observed in India's position with occasional ups and downs. Bangladesh's position as an exporter of bran and milling products was not one to be emulated, the consistent negative RSCA estimates suggested comparative disadvantage in its bran and milling products exports throughout the study period and it did not show any significant sign of recovery.

Figure 9 displays Sri Lanka's supremacy in pineapple exports among South Asian countries. In all the years under study, the RSCA values were found positive but fluctuated over the years. Sri Lanka has comparative advantage in exports of pineapple.

Figure 9. Trends in Revealed Symmetric Comparative Advantage (RSCA) Estimates of Pineapple Exports from Sri Lanka and other South-Asian Countries

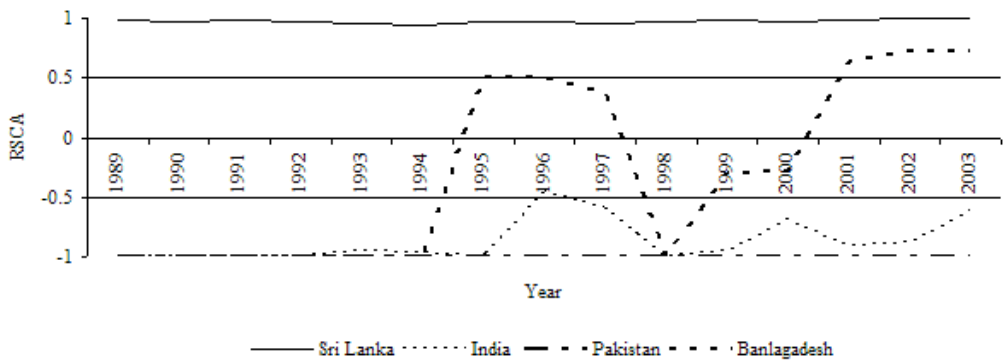


Note: Graph for Pakistan & Bangladesh are indistinguishable. The data for Bangladesh & Pakistan is -1 for all years except for Pakistan in year 1989, 1996 & 2002 is -0.992, -0.999, -0.969, respectively.

The RSCA values for other South Asian countries, viz. Pakistan, India and Bangladesh were found to be less than zero and suggested a comparative disadvantage for their pineapple abroad. Their RSCA estimates varied from -1 to -0.73 during 1989 to 2003 and never showed sign of notable improvement.

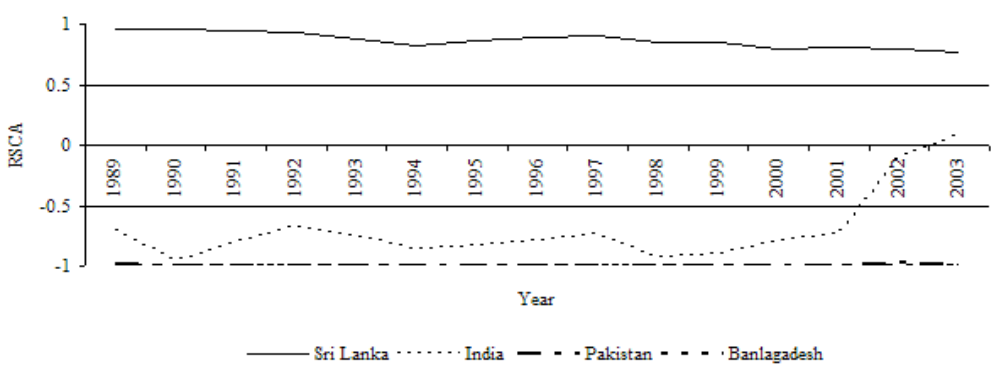
Sri Lanka continues to maintain its prime status as the world's largest exporter of copra throughout the study period, particularly through its comparative advantage in the international markets. This fact can be corroborated from the results presented in Figure 10. In all the years under study, the RSCA values for Sri Lanka are in range of 0.972 to 0.995. After 2000, Bangladesh improved its comparative advantage steadily, as a result of which copra exports from Bangladesh shot up phenomenally. However, the performance of India and Pakistan seemed to be far off the mark.

Figure 10. Trends in Revealed Symmetric Comparative Advantage (RSCA) Estimates of Copra Exports from Sri Lanka and other South-Asian Countries



The computed RSCA values for Sri Lanka are positive for all years and indicate its comparative advantage in natural rubber exports as shown in Figure 11.

Figure 11. Trends in Revealed Symmetric Comparative Advantage (RSCA) Estimates of Natural Rubber Exports from Sri Lanka and other South-Asian Countries



But other South Asian countries did not enjoy a comparative advantage throughout the study period. Moreover, the comparative edge which Sri Lanka exhibited during early 1990s slowly deteriorated over the years, with the index gradually eroding from 0.953 in 1989-90 to 0.769 in 2003-04. In 2003-04, Indian natural rubber exports turned out to have a marginal advantage among the South Asian countries other than Sri Lanka.

The main conclusion to be drawn from our foregoing analysis of Sri Lanka's comparative advantage is that its comparative advantage is much better than other leading South Asian exporters especially in the exports of tea, coconuts, copra, pepper, natural rubber,[15] and bran and milling products with positive value of RSCA. Under the AoA regime, values of RSCA for selected traditional exportable items, namely copra, tea, bran and milling, and pepper have increased. While RSCA values for selected other commodities, namely pineapple and tobacco have worsened. The RSCA values for rice are negative and have been fluctuating over the years. The negative value of RSCA for Sri Lankan rice suggests that it has not acquired comparative advantage in exports of rice. We now estimate the determinants of growth in Sri Lanka's farm exports.

4.8 Determinants of Sri Lanka's Farm Exports

The results of Augmented Dickey-Fuller (ADF) unit root test and Philips-Perron (PP) unit root test at level and first difference forms for four variables, namely Sri Lanka's farm exports, exchange rate, GDP agriculture, and world's farm exports are given in Table 12. The table shows that all variables (in natural log form) are non-stationary at level. In first difference form all series are stationary. Therefore, it is concluded that all the series are I(1).

The regression estimates of the export growth model (Eq. 4) are presented in Table 13.

Table 12. Results of Augmented Dickey-Fuller and Philips-Perron Unit Root Tests

Variable	Level			First difference		
	ADF test statistic	PP test statistic	Inference	ADF test statistic	PP test statistic	Inference
(1)	(2)	(3)	(4)	(5)	(6)	(7)
ln Y	-0.760(0)	-0.760(0)	Non-Stationary	-3.353(0)**	-3.350(2)**	Stationary
ln W	-0.836(0)	-0.912(2)	Non-Stationary	-2.791(0)**	-2.778(1)**	Stationary
ln R	-0.698(0)	-0.677(2)	Non-Stationary	-3.055(0)**	-2.996(0)**	Stationary
ln G	-1.019(0)	-1.072(6)	Non-Stationary	-4.037(0)***	-4.025(5)***	Stationary

Notes: (i) Figures in parenthesis in 2nd and 5th columns are the optimal lag length chosen by using the Schwarz Information Criterion.
(ii) Figures in parenthesis in 3rd and 6th columns are the optimal Newey West Bandwidth chosen by using the Bartlett Kernel Criterion.
(iii) ***and ** indicate rejection of null hypothesis of unit root at 1 per cent and 5 per cent confidence levels, respectively.
(iv) Tests statistics are computed using regressions with an intercept and no trend.
(v) Mackinnon (1996) critical values are used for the rejection of null hypothesis in both ADF and PP tests.

Source: Computed on the basis of data available in Annual Report, Central Bank of Sri Lanka, *FAO Trade Yearbook*, (1986-2003), *World Development Report* and official website of FAO (www.faostat.fao.org).

Table 13 shows that all the selected variables have expected (*i.e.*, positive) sign. The computed *'F'*-test value for the regression model is statistically significant at 5 per cent level. The results presented in last three rows of the table suggest that our estimates of parameters are fit for reliable interpretation, *i.e.*, correct functional form, homoscedasticity and no autocorrelation. The presence of multi-collinearity is detected by estimating Variance Inflation Factor (VIF) values. The estimated values of VIF for all explanatory variables were less than ten. This result suggests the absence of multi-collinearity problem.

Table 13. Results of Export Growth Model for Sri Lankan Agriculture

Independent Variable	Coefficient	Standard error	*t*-statistic	Significance
(1)	(2)	(3)	(4)	(5)
Intercept	-0.284	0.167	-1.697	0.110
Δln(W)	1.466	0.673	2.178	0.046
Δln(R)	1.091	1.403	0.778	0.449
Δln(G)	0.546	0.789	0.692	0.500
Dummy variable for WTO	0.242	0.083	2.910	0.017
Diagnostic				
R^2	0.447			
F-statistic	3.030			0.051
Functional form χ^2	0.902			0.358
Heteroscedasity χ^2	1.786			0.184
Autocorrelation χ^2	0.877			0.439

Notes: Functional form χ^2 is Ramsey's REST test, Heteroscedasity χ^2 is BPG test and Autocorrelation χ^2 is Breusch-Godfrey Serial Correlation LM test.

Source: Computed on the basis of data available in *Annual Report*, Central Bank of Sri Lanka, *FAO Trade Yearbook*, (1986-2003), *World Development Report* and official website of FAO (www.faostat.fao.org).

The coefficient of dummy variable is statistically significant at 1 per cent. It suggests that AoA has induced Sri Lanka's farm exports. The coefficient for the value of the world's farm exports suggests that an increase in size of world agricultural market leads to expansion in Sri Lankan farm exports. The GDP agriculture (size of Sri Lankan agriculture) as well as the exchange rate coefficients have expected sign (*i.e.*, positive). However, these turns out to be statistically insignificant in explaining Sri Lanka's agricultural exports. Next we investigate the bilateral farm trade between Sri Lanka and India.

4.9 Sri Lanka-India Farm Trade

The other limitation of before and after approach, used above, may be that it assumes that Sri Lanka's trade environment remains unchanged over the pre and post-AoA periods. But under the AoA regime (December, 1998) Sri Lanka has signed a major bilateral trade agreement, *i.e.*, Indo-Sri Lanka Free Trade Agreement (ISFTA) which was implemented in March 2000. The agreement provides for duty free as well as duty preference access, as outlined below, for the goods manufactured in two countries. Both countries listed products for immediate duty free entry into each other's territories. India has phased out its tariffs on a large number of items within a period of three years. Sri Lanka has done so in stages over eight years [WTO, 2010, P. 22].

India has liberalised its trade policy for Sri Lanka in following ways: (a) granting duty free access for 1411 items by six-digit HS Code with effect from March 31, 2000, (b) 25 per cent tariff reduction for 528 textile items, (c) other than the 429 items in the negative list of India, 50 per cent reduction of tariffs for the balance 2799 items, upon the agreement coming into force followed by phased out removal of tariffs up to 100 per cent

in 2 stages within 3 year, (d) a 50 per cent fixed tariff concession for imports of tea from Sri Lanka on a preferential basis subject to an annual maximum quota of up to 15 million kg, and (e) a 50 per cent fixed tariff concession for imports of garments from Sri Lanka subject to a maximum annual quota of 8 million pieces of which a minimum of 6 million pieces should contain Indian fabrics.

Sri Lanka has granted: (i) duty free access for 342 tariff lines (6.5 per cent of total tariff lines) by six-digit HS Code (raw materials and machinery for industries) upon the agreement coming into force, (ii) 50 per cent reduction of tariffs for 889 items by six-digit HS Code (raw materials) upon the agreement coming into force followed by phased out removal of tariffs, (iii) for 1180 items (22.5 per cent of total tariff lines at the six-digit level) which are in Sri Lanka's negative list there is not any duty preference, for remaining 2822 items (54.2 per cent of total tariff lines) by six-digit HS Code, upon the agreement coming into force, the removal of tariffs has phased out within 8 year.

The improvement in Sri Lankan farm trade surplus may be due to ISFTA. In order to have a general idea of impact of ISFTA on Sri Lankan farm trade, bilateral farm trade between Sri Lanka and India has been examined. Table 14 illustrates the major position of bilateral farm trade between Sri Lanka and India. A glance at row 5 of Table 14 makes it clear that Sri Lanka has experienced an unfavourable farm trade balance against India. After the coming into effect of ISFTA on March 1, 2000, Sri Lanka's farm trade deficit was higher than 1999-2000 level (except 2005-06). It indicates that ISFTA has failed to boost the Sri Lanka's farm trade surplus.

Table 14. Sri Lanka-India Farm Trade

Item	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Export (a)	11.56	8.49	20.29	22.75	17.28	31.50	34.61	29.94	74.30	214.30	153.72	147.04
Import (b)	201.20	173.71	124.69	158.58	165	210.97	256.36	298.33	284.47	270.55	340.79	332.24
Net trade (c = a-b)	-189.64	-165.22	-104.40	-135.83	-147.72	-179.47	-221.75	-268.39	-210.17	-56.25	-187.07	-185.20
Import/export ratio [d = (b/a) 100]	17.40	20.46	6.15	6.97	9.55	6.70	7.41	9.96	3.83	1.26	2.22	2.26

Note:* = April to December.
Source: Computed using data available in Department of Commerce, Government of India (GoI) official website (htpp://commerce.nic.in).

However, the import coverage ratio, ratio of the import value to the export value, which acts as the barometer to measure the extent to which export proceeds can cover the disbursement on imports, improved from 9.55 per cent in 2000-01 to 2.26 per cent in 2007-08. Sri Lanka's total farm trade with India has shown an upward trend. Agricultural exports and imports both appear to have greatly increased and also increased at a much more rapid pace after 2001-02. However, this growth is dominated by Sri Lanka's farm imports rather than farm exports. It may be added here that the bilateral farm trade between Sri Lanka and India has grown at a faster pace than farm trade between Sri Lanka and the rest of the world after the coming into force of the Indo-Sri Lanka Free Trade Agreement. It suggests potential key opportunity to tap into the large and dynamic Indian market.

5. SUMMING UP

The pattern of Sri Lanka's agricultural trade during pre and post-Agreement on Agriculture (AoA) phases (which may also be considered as pre and post-WTO phases) is analysed using the exponential and nominal growth models. The competitiveness of Sri Lankan farm commodities has been assessed in the context of both importable and exportable hypotheses using Nominal Protection Coefficient. The comparative advantage of farm commodities of Sri Lanka and other South Asian countries, namely India, Pakistan and Bangladesh, has been worked out applying modified version of Balassa's index. Determinants of Sri Lanka's farm export growth are estimated using the regression analysis. Sri Lanka and India's bilateral farm trade is analysed using tabular analysis. The development in the Doha Round multilateral trade negotiations on farm trade liberalisation is reviewed. It is noticed that one focus of the Doha Development Agenda of World Trade Organization negotiations is the easing of agricultural commodity access into the world market by reaching an agreement regarding the three controversial agricultural themes: the reduction of tariffs on imported agricultural goods, and the reduction of agricultural production and export subsidies.

It is found that value of Sri Lankan agricultural exports, which was declining during pre-AoA phase, has grown more than threefold after the coming into effect of the AoA. And its agricultural exports have grown faster than agricultural imports. As a result, agricultural trade surplus has increased which helped in bringing down the overall trade deficit. The results of nominal growth model suggest that in the emerging liberalised trade order and AoA, the growth in Sri Lanka's overall exports has been driven most of all by an increase in market share for its agricultural exports but also through an expansion of the world's agricultural exports as well as through an increased share of Sri Lanka's agricultural exports in Sri Lanka's total exports. While the expansion of the world's agricultural exports might have been as much due to overall growth of demand for agricultural commodities due to growth of population and per capita incomes as due to AoA, the post-AoA reversal of Sri Lanka's declining agricultural exports as well as the post-AoA increased share of Sri Lanka's agricultural exports in Sri Lanka's total exports are most likely to have been mainly the result of the favourable consequence of AoA on Sri Lanka's agricultural exports. During post-WTO period, instability in Sri Lanka's farm trade has also declined.

As pointed out by Josling [2009, Pp. 245-282] that agricultural trade accounted for a small and declining share of global merchandise trade. But its share in total trade disputes has been large. Since the establishment of the WTO a large number of disputes have dealt with agricultural and food trade issues. Agricultural exports now make up to 8 per cent of global exports. Of 367 requests for consultations made to the Dispute Settlement Board (DSB) of the WTO, 100 have primarily been about agricultural trade, a share of 27 per cent.

An analysis of data (available on WTO's official website) on total dispute settlement cases with WTO's DSB brings out that Sri Lanka, on February 23, 1996, has put only one request consultation with Brazil concerning Brazil's imposition of countervailing duties on Sri Lanka's export of desiccated coconut, coconut and milk powder. It may be noted here that desiccated coconut, coconut and milk powder don't constitute a major share in Sri Lanka's total farm exports as shown in Table 8 (p. 70). From our forgoing analysis it may be concluded that, due to better quality, Sri Lanka's farm exports have not suffered from trading partners' disguised protectionist policies like other countries. This may be one of the plausible casual factors for increase in Sri Lanka's share in global total farm trade under WTO regime. Further, during the later period the

pattern of the world farm trade (relative shares of different countries) has changed which may have also benefited Sri Lanka's agricultural trade.

A further scrutiny of data presented in Table 8 reveals that Sri Lanka's farm exports are dominated by tea. Its major tea import partners are developing countries which have liberalized their trade policies under WTO regime. It has benefited Sri Lanka's farm exports in general and tea exports in particular. Furthermore, world prices of tea have exhibited a rising trend—global tea's export unit value has increased from $1.95 per kg in 1994-95 to $2.08 per kg in 2005-06. It may partially be due to the increased demand for tea arising from increasing population and per capita incomes. However, it may be pointed out here that Sri Lanka's share in the world's total tea exports has increased from 10.04 per cent in 1994-95 to 22.45 per cent in 2005-06, which is most likely to have been due to trade liberalisation under WTO regime as mentioned above. The openness (measured as the ratio of quantity exported to the quantity produced) of world tea market has increased from 40.7 per cent to 46.95 per cent during the same period.

The terms of trade for agriculture and normalised trade balance in agriculture, which had worsened during pre-AoA phase, have improved vigorously under new trading regime. The share of Sri Lanka's agricultural trade in the world's total agricultural trade has moved up sharply in the new international environment. Similarly, the importance of agricultural trade in the country's overall foreign trade has improved. It is worth noting that agricultural trade has grown faster than GDP agriculture. It indicates the increasing integration of Sri Lankan agriculture with the rest of the world.

Under ISFTA, the bilateral farm trade between Sri Lanka and India grew at a faster pace than farm trade between Sri Lanka and the rest of the world. However, this growth is mainly driven by Sri Lanka's farm imports rather than exports. As a result, Sri Lanka has experienced a worsening unfavourable trade balance against India. Thus, it is the AoA of the WTO which has boosted Sri Lanka's net agricultural exports and perhaps not ISFTA as such. ISFTA probably stimulated the growth of India's farm exports to Sri Lanka.

As far as comparative advantage is concerned it is established that Sri Lanka's comparative advantage is much better than other leading farm producers especially in the exports of tea, coconuts, copra, pepper, natural rubber and bran & milling products. Sri Lanka is a net food importing country. Under the WTO regime, its dependence on imported food grains has increased.

Sri Lanka is not self-sufficient in food grains. This situation can be improved by providing incentives to farmers for food grains production (presumably through higher domestic prices of food grains). Increase in world prices of food grains resulting from withdrawal of domestic support by developed countries, in due course, can enhance the competitiveness of Sri Lanka's food crops on one hand and can discourage the cheap food imports on the other. In this way, establishment of a fair and market oriented agricultural trading system in the global economy can strengthen Sri Lanka's food security base by increasing food production capacity and farmers' incomes. This suggests that in the WTO farm trade negotiations, Sri Lanka should follow a strategy which persuades developed countries for an effective and substantial cut in their agricultural subsidies and protective measures in order to be able to take other necessary measures to strengthen the food security base of the country.

NOTES

1. SSM is an instrument to enable developing countries to increase their tariffs above the bound tariff rates commitments made in the Uruguay round in the event of a fall in price of imported products or an increase in the volume of imports beyond certain levels. However, by using SSM, the additional

tariffs imposed by developing countries shall not go above the commitments which they have made in the 1986-94 Uruguay Round (the pre-Doha Round bound rates).

2. SPs, according to the July framework, consist of a number of products or tariff lines that can be flexibly designated by developing countries guided by food security, livelihood security and rural development indicators. The SPs are those products: (a) which will be excluded from tariff reduction formula, (b) which will not be subjected to expansion of minimum market access (Tariff Rate Quota) or new TRQ, and (c) which will have automatic access to SSM.

3,4,5. The author is grateful to an anonymous referee of the Journal for bringing these papers to his attention.

6. It will be worthwhile in further research to assess the impact of agricultural trade liberalisation on agricultural production and GDP in agriculture in Sri Lanka. Our attention was drawn to this by the editor of the Journal.

7. It may be noted that the annual average growth rates of Sri Lankan GDP agriculture and devaluation of Sri Lankan Rs. in terms of US$ have dropped from 7.1, 7.9 per cent during pre-AoA phase to 2.2, 7.5 per cent during post-AoA phase, respectively.

8. See Aquila, Conforti, Ford and Khaira [2007] for detail discussion on advantage of normalised trade balance.

9. See Balassa [1965] for detail discussion on merits of revealed comparative advantage index.

10. In the study, figure in dollar ($) refers to U.S. currency.

11. FAO Trade Yearbook indicates that Sri Lanka is the world's largest exporter of tea and copra with a share of 25.89 and 24.14 per cent in 2002-03, respectively. And it occupies 2nd position in export of coconut desiccated with a share of 12.84 per cent during the same period.

12. Annual report of the Central Bank of Sri Lanka indicates that production of rubber and potato fall from 113kg Mn and 100.8 MT'000 in 1996-97 to 91kg Mn and 88.7 MT'000 in 2002-03, respectively.

13. It may be noted that wheat is also Sri Lanka's chief import item and staple food. It is widely known that all wheat consumed in Sri Lanka is imported. A major side-effect, however, of the availability of relatively cheap wheat flour may be to discourage rice cultivation. Nevertheless, Sri Lanka adopts an import substitution policy for wheat by encouraging production of rice (local market prices of rice in Sri Lanka are largely determined by domestic supply and demand conditions). In 2005-06, the share of domestic sources in total supply of sugar was 16.64 per cent while in case of rice it was 97.47 per cent [*Food Balance Sheet,* Dept. of Census & Statistics, Sri Lanka, 2007]. Further, import duty on wheat was raised from 10 per cent in 2008-09 to 15 per cent in 2009-10 and a cess of 5 per cent imposed on flour imports. As a result of the above pricing and tariff policies, domestic prices of wheat flour and related products have been higher than the world market prices—thus penalising consumers and undermining the Government of Sri Lanka's designation of wheat as an essential food item [Karunagoda *et al.*, 2011].

14. It may be noted that exports of tea, cashew nuts, natural rubber, coconut products and raw hides are subject to export tariff and levies [Government of Sri Lanka, 2007].

15. It is notable that domestic production of rubber declined from 112.5 kg mn in 1996-97 to 86.2 kg mn in 2001-02 [Central Bank of Sri Lanka, 2008].

16 It may be noted that lack of comparative advantage in rice export may partially be because rice is Sri Lanka's and India's most important staple food. India is the world's second largest producer and consumer of rice after China [Ramphul, 2010a]. During the period under study Pakistan's rice export quantity has grown faster than that of export unit value. Besides, export unit value of Indian rice was higher than that of Pakistan [Ramphul, 2010b].

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APPENDIX 1

Table A. 1. Time Profile of Sri Lankan GDP Agriculture, Exchange Rate, Merchandise Exports, Imports, Trade Deficit, and World Agricultural Exports

Year	Sri Lanka's GDP agriculture ($ million)	World agricultural exports ($ billion)	Exchange rate (Sri Lankan Rs./US$)	Sri Lanka's merchandise exports ($ million)	Sri Lanka's merchandise imports ($ million)	Sri Lanka's merchandise trade deficit ($ million)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1985-86	1485.00	209.04	27.18	12963	18155	5192
1986-87	1528.80	229.22	28.02	12273	18461	6188
1987-88	1630.80	252.76	29.44	13553	20315	6762
1988-89	1685.00	287.49	31.81	14599	21799	7200
1989-90	1648.40	302.48	36.05	15543	21099	5556
1990-91	1885.00	326.70	40.06	19156	26932	7776
1991-92	2212.65	329.40	41.37	19734	30394	10660
1992-93	2279.94	357.94	43.83	24807	34444	9637
1993-94	2344.25	339.03	48.25	28830	38090	9260
1994-95	2810.88	389.06	49.42	31558	44305	12747
1995-96	2970.45	443.65	51.25	38856	48865	10009
1996-97	3060.64	465.89	55.27	40619	50005	9386
1997-98	3320.46	457.95	58.99	45431	57336	11905
1998-99	3298.47	438.53	64.59	47306	58817	11511
1999-2k	3351.18	418.09	70.39	45940	59610	13670
2000-01	3261.00	421.83	75.78	54160	72090	17930
2001-02	3023.09	424.33	89.36	48170	59240	11070
2002-03	3313.40	454.00	95.66	46990	61050	14060
2003-04	3702.80	537.58	96.52	51250	66720	15470
2004-05	3609.90	620.56	101.19	57570	79730	22160
2005-06	3991.43	669.06	100.50	62750	89850	27100

Source: *FAO Trade Yearbook*, (various issues, 1990-2003).

Table A. 2. Trends on World Exports of Farm Products

(US$ million)

Year	Bran and milling	Coconuts dry	Pineapples	Pepper	Tea	Tobacco	Copra	Rubber	Rice
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1989-90	5046.73	141.39	165.02	508.27	2442.59	13990.0	88772	4184.93	5046.73
1990-91	4141.79	131.62	178.01	381.65	2776.60	18300.0	62790	3429.59	4141.79
1991-92	4476.14	153.41	183.83	303.10	2471.57	19526.7	57331	3435.27	4476.14
1992-93	5269.27	210.91	177.47	269.86	2282.51	21600.7	84239	3661.21	5269.27
1993-94	5109.85	171.01	221.87	293.03	2313.39	19538.6	58292	3473.92	5109.85
1994-95	6174.88	172.09	260.99	454.83	2066.26	21503.9	76206	4687.51	6174.88
1995-96	7336.31	188.39	298.24	579.91	2249.45	22429.9	88403	7079.84	7336.31
1996-97	7605.50	254.34	346.07	569.32	2496.79	25945.6	90525	6976.31	7605.50
1997-98	6814.93	260.23	369.13	885.80	2943.81	26211.9	143591	4843.17	6814.93
1998-99	9562.24	199.02	377.11	1012.23	3351.23	24571.0	107167	3966.08	9562.24
1999-2k	7868.71	259.09	438.02	1141.46	2758.54	22127.4	98741	3317.69	7868.71
2000-01	6459.82	230.44	404.79	1014.73	2895.28	22357.2	102208	3875.79	6459.82
2001-02	7015.26	173.45	498.37	522.36	2832.85	20754.6	28995	3255.21	7015.26
2002-03	6785.58	226.99	620.67	538.80	2514.03	20373.3	28923	4281.29	6785.58
2003-04	7075.93	206.31	806.05	541.03	2578.16	21731.4	31216	6189.64	7075.93

Source: *FAO Trade Yearbook* (various issues, 1990-2003).

Table A. 3. Trends on Indices for Sri Lanka's Value of Farm Exports and Imports

Year	Export value index	Import value index
(1)	(2)	(3)
1985-86	79	46
1986-87	62	43
1987-88	65	38
1988-89	68	54
1989-90	68	68
1990-91	79	64
1991-92	69	68
1992-93	65	76
1993-94	45	63
1994-95	38	54
1995-96	70	88
1996-97	93	102
1997-98	114	114
1998-99	112	111
1999-2k	96	103
2000-01	104	101
2001-02	98	95
2002-03	97	106
2003-04	104	110
2004-05	116	123
2005-06	127	132

Source: FAO Official Website: www.faostat.fao.org/.

Table A. 4. Trends on Sri Lanka's Exports of Farm Products

(US$, 000)

Year	Bran and milling	Coconuts dry	Pineapple	Pepper	Tea	Tobacco	Copra	Rubber	Rice
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1989-90	10600	28772	342	4247	379697	4078	4140	88182	187
1990-91	13200	35679	342	2932	493902	6156	2995	76979	206
1991-92	9805	37100	515	3365	426085	12937	4473	63388	0
1992-93	12000	54544	511	2784	339175	42671	4322	68062	0
1993-94	9400	16081	297	5279	260996	26360	2281	41750	424
1994-95	10000	21608	286	3413	207450	20264	1995	36366	6664
1995-96	12300	21608	415	5742	369009	38140	4663	76920	11699
1996-97	0	45141	486	6224	544957	40407	5277	95130	772
1997-98	1	63457	886	13726	716630	40842	4663	78584	967
1998-99	5	72597	925	25771	747806	42615	6866	42121	1410
1999-2k	1	44591	1198	18280	605347	38377	8834	32255	859
2000-01	3	71333	1403	20647	683153	39132	7632	28393	1170
2001-02	6506	31710	1848	5954	679951	38040	6845	23733	1012
2002-03	13238	29159	1636	15345	650961	39701	9873	26402	1175
2003-04	14725	18321	2042	10195	316026	45547	10242	32567	1139

Source: *FAO Trade Yearbook* (various issues, 1990-2003).

Table A. 5. Trends on Whole Sale and CIF Prices of Farm Commodities in Sri Lanka

(Rs./tonnes)

Year	Whole sale price of rice	Whole sale price of wheat	Whole sale price of sugar	CIF price of rice	CIF price of wheat	CIF price of sugar
(1)	(2)	(3)	(4)	(5)	(6)	(7)
2001-02	21118	10342	18914	19388	10443	19187
2002-03	25648	12847	24416	18647	12865	24511
2003-04	18757	12116	22833	18215	12512	22809
2004-05	24733	14109	21896	23677	14428	21982
2005-06	24662	18629	25482	27908	18668	25227
2006-07	31499	16513	31637	30035	16438	31825

Source: *Annual Report*, Central Bank of Sri Lanka (various issues).

Table A. 6. Trends on Whole Sale Prices of Farm Commodities in Sri Lanka

(Rs. /Kg.)

Year	Copra	Coconut oil	Coconut dry	Rubber	Tea
(1)	(2)	(3)	(4)	(5)	(6)
1995-96	28.59	41.23	42.57	83.69	102.31
1996-97	41.63	50.98	65.78	79.78	139.56
1997-98	46.93	52.06	67.00	75.96	158.39
1998-99	50.28	74.57	65.77	67.72	184.37
1999-00	56.28	68.19	80.94	53.82	162.39
2000-01	40.29	53.44	59.84	66.95	184.37
2001-02	40.69	56.03	56.83	66.35	208.89
2002-03	75.55	85.86	97.55	69.53	216.26
2003-04	63.87	82.82	77.56	105.25	221.01
2004-05	69.76	89.55	86.85	128.51	248.92
2005-06	83.40	93.80	101.11	147.73	263.31
2006-07	72.44	98.63	95.66	189.86	279.97
2007-08	92.24	140.76	133.57	234.48	364.28

Source: *Annual Report*, Central Bank of Sri Lanka (various issues).

Table A. 7. Trends on Sri Lanka's FOB Prices of Farm Products

(Rs./Kg.)

Year	Copra	Coconut oil	Coconut dry	Rubber	Tea
(1)	(2)	(3)	(4)	(5)	(6)
1995-96	26.15	34.49	38.87	69.95	72.21
1996-97	44.69	56.32	62.83	66.22	103.88
1997-98	49.50	55.69	61.30	54.54	119.40
1998-99	47.65	67.92	61.14	46.21	134.35
1999-00	54.89	66.23	75.00	43.47	115.31
2000-01	34.40	48.20	48.90	51.99	135.53
2001-02	41.31	61.08	52.41	52.88	143.96
2002-03	69.51	83.17	90.20	66.71	149.30
2003-04	58.19	68.55	71.36	91.21	149.05
2004-05	63.47	86.87	85.63	127.20	180.74
2005-06	77.18	97.06	95.25	147.41	185.84
2006-07	65.50	97.50	87.33	202.55	198.87
2007-08	96.74	151.89	125.70	234.22	279.10

Source: *Annual Report*, Central Bank of Sri Lanka (various issues).

Table A. 8. Trends on India's Exports of Farm Products

(US$, 000)

Year	Rice	Coconuts dry	Bran and milling	Pepper	Tea	Tobacco	Rubber
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1989-90	255900	0	0	98600	542760	91340	4000
1990-91	246400	0	0	87000	601890	117130	400
1991-92	309765	0	0	29672	490292	128786	1933
1992-93	370729	0	0	28543	360993	135117	3973
1993-94	411747	0	51	59154	331845	147587	3000
1994-95	385851	0	192	75074	308399	81520	2223
1995-96	1416104	138	3121	59909	359054	138515	4200
1996-97	888260	344	2094	114795	282579	211897	4806
1997-98	1000170	344	2094	135000	485000	105963	4806
1998-99	1507380	214	397	146020	518258	182828	844
1999-2k	726056	228	596	164402	406106	234341	1107
2000-01	655457	70	2028	70617	431596	193953	3222
2001-02	706828	125	8424	41589	367207	179862	3575
2002-03	1212481	309	861	35900	326629	211454	29229
2003-04	895283	147	3308	27422	333408	235521	55208

Source: *FAO Trade Yearbook* (various issues, 1990-2003).

Table A. 9. Trends on Bangladesh's Export of Farm Products

(US$, 000)

Year	Bran and milling	Coconuts	Pepper	Tea	Tobacco	Copra	Rice
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1989-90	0	0	0	37618	2115	0	0
1990-91	0	0	0	35000	1200	0	0
1991-92	0	0		43238	2317	0	0
1992-93	0	0	0	48620	3600	0	0
1993-94	0	0	0	40433	1681	0	0
1994-95	0	0	0	35000	860	0	0
1995-96	0	0	0	33000	920	180	0
1996-97	0	1	0	27507	1601	160	49
1997-98	0	0	0	30000	1601	180	12
1998-99	0	0	0	45155	5672	0	115
1999-2k	0	0	0	39585	3274	49	69
2000-01	0	0	0	16400	3274	49	130
2001-02	0	0	0	6500	2504	200	139
2002-03	0	0	2	4652	3125	200	400
2003-04	26	0	29	8223	8615	200	242

Source: *FAO Trade Yearbook* (various issues, 1990-2003).

Table A. 10. Trends on Pakistan's Export of Farm Products

(US$, 000)

Year	Coconuts dry	Pepper	Tea	Rubber	Rice
(1)	(2)	(3)	(4)	(5)	(6)
1989-90	0	0	1092	24	310262
1990-91	0	0	0	0	241762
1991-92	0	0	0	0	345235
1992-93	0	0	0	0	412281
1993-94	0	0	171	0	320341
1994-95	0	0	2862	0	241523
1995-96	0	64	13926	0	462844
1996-97	0	0	26	3	514231
1997-98	0	0	0	0	479777
1998-99	0	84	3123	0	567684
1999-2k	14	84	3123	0	591118
2000-01	14	0	850	0	533314
2001-02	0	0	86	0	520828
2002-03	0	88	22	102	460447
2003-04	0	0	193	0	561737

Source: *FAO Trade Yearbook* (various issues, 1990-2003).

Table A. 11. Trends on World, India, Pakistan and Bangladesh Merchandise Exports and World Farm Imports

Year	World merchandise exports ($ billion)	India's merchandise exports ($ million)	Pakistan's merchandise exports ($ million)	Bangladesh's merchandise exports($ million)	World agri. imports ($ billion)
(1)	(2)	(3)	(4)	(5)	(6)
1985-86	1942.68	8963	2542	997	203.26
1986-87	2129.68	9291	3123	904	211.80
1987-88	2496.42	12069	3770	1112	256.20
1988-89	2859.42	13960	4523	1317	293.41
1989-90	3087.19	16609	4735	1323	317.34
1990-91	3497.76	18215	5061	1491	353.17
1991-92	3509.21	18057	6223	1699	354.63
1992-93	3752.22	20402	6869	1929	385.88
1993-94	3747.55	22320	6939	2254	356.11
1994-95	4275.60	26456	6893	2469	404.30
1995-96	5110.89	32969	7937	3407	462.23
1996-97	5342.30	32907	8311	3539	479.79
1997-98	5338.88	35831	8035	4018	468.58
1998-99	5468.37	33871	8395	5056	457.33
1999-2k	5669.29	37057	7956	5158	442.39
2000-01	6380.84	45298	9028	5476	435.20
2001-02	6130.01	44293	9238	6275	438.72
2002-03	6436.83	53579	9913	5218	464.06
2003-04	7465.84	63015	11930	5812	548.55
2004-05	8877.83	79866	13380	6600	643.50
2005-06	10245.90	103516	15942	9190	674.44

Source: FAO Official Website: www.faostat.fao.org/.

Table A. 12.Trends on India, Pakistan and Bangladesh Total Farm Exports

Year	India's farm exports ($ million)	Pakistan's farm exports ($ million)	Bangladesh's farm exports($ million)
(1)	(2)	(3)	(4)
1985-86	2264	701	229
1986-87	2376	1049	185
1987-88	2383	926	156
1988-89	2175	1240	160
1989-90	2657	1489	164
1990-91	3075	987	160
1991-92	2796	1033	146
1992-93	2948	1237	140
1993-94	3357	870	123
1994-95	3240	685	103
1995-96	4530	1018	129
1996-97	5850	1396	106
1997-98	5316	837	148
1998-99	5225	1154	158
1999-2k	4642	1189	127
2000-01	4950	1069	99
2001-02	5234	1020	94
2002-03	5522	1012	100
2003-04	6504	1284	103
2004-05	7058	1304	114
2005-06	9378	1785	204

Source: FAO Official Website: www.faostat.fao.org/.

AN ANALYSIS OF HIERARCHICAL DISTRIBUTION OF EDUCATION IN INDIA

Sharmita Dhar, Narayan Chandra Nayak, Bani Chatterjee

This study finds out the transition rate of enrolment at various levels of education in India. The study presents how on the basis of enrolment data the educational status can be judged. States and union-territories are grouped according to the order of transition rates and their literacy rates are computed. The study finds steady improvement in the transition rates in India. However, generally boys experience greater transition rates than girls in most of the states and union territories. Over the years, considering the country as a whole, the transition rate at lower level of education is less than that at upper level. Kerala, Goa, Tamil Nadu among the states and Delhi, Chandigarh and Puducherry among the union territories are, however, better-off on this front. Among the major states, Andhra Pradesh, Bihar, Uttar Pradesh, Odisha, Assam, Gujarat, Rajasthan and West Bengal are found to be the most laggard ones on educational front. The study suggests for universalisation of elementary education and adequate public action on this front.

I. Introduction

Attainment of a decent level of education is considered inevitable in any country in its pursuit of attaining sustainable development. Over time, education has, however, changed its character from being treated as an economic good that meets both present and future consumption requirements in its specific way [Schultz, 1963] to the recognition of its intrinsic values [Dréze and Sen, 1995]. Being educated is now treated as a valuable achievement in itself and the opportunity to have it can be of direct importance to a person's effective freedom. This approach to educational attainment has gained momentum since the inception of 'human development' as the new development paradigm [UNDP, 1990]. Millennium Development goals have reinforced the same while fixing a target of universal primary education by 2015 the world over [UN, 2007].

In our attempt to achieve growth with social justice, though universal primary education becomes the basic prerequisite, attainment of higher levels of education is considered imperative to sustain the same. In India, ironically, the situation with respect to hierarchical distribution of education is not very encouraging. There persists a two-way inequality in this front. First, in the country as a whole and in its constituent states, there is inequality in the enrolment at different levels. States like Bihar, Uttar Pradesh, Rajasthan, Andhra Pradesh and Odisha, to name a few, experience significant fall in enrolment at the middle level after enrolment at the primary level (tables 4 and 5). Second, there persists inequality in the distribution of education across states for a given level of education. In 2001, while Kerala attained the literacy rate at 91 per cent, Bihar, one of the poorest states of the country, attained only 48 per cent (table 1). Differences in the distribution of education are also witnessed over gender, caste, regions and so on. Although the country has witnessed a noteworthy improvement in enrolment figures over the years both at the aggregate as well as across gender, gender differences still persist (table 3). Gender difference in states like Bihar, Uttar Pradesh, Odisha, Rajasthan and Gujarat warrants immediate intervention (tables 6-9).

Persistent inequality in the hierarchical distribution of education may prompt one to analyze the characteristics of education as a good and its

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relationship with human development. Economists distinguish goods on the basis of certain characteristics and accordingly, they often categorize the goods as one of the three - public goods, private goods or merit goods. As a matter of fact, education falls under all the three categories, in one form or the other, thereby making the task more complex. Education plays a pivotal role in influencing the human development of a country. In construction of human development index, education index represented by adult literacy rate and gross enrolment ratio carries as much weight as income and health indices do. While education per se is significant, distribution of education ought to be such that it contributes to the growth process. When distribution of any good is considered, studies emphasize on those who are at the lower rungs of the ladder. The obvious approach in this context is Rawls' [1971] 'Maximin Approach'. In the distribution of a good y, minimum values are maximized, *i.e.*, persons entitled with minimum amount of goods will first reach minimum acceptable line and then will reach equality. In politics, this minimum acceptable line is simply the voting right; in distribution of income and wealth, it is poverty line; and in education, it is literacy rate.

Applying Rawls' concept in the context of attainment of education, it may be argued that the objective of a society should be to maximize the level of minimum education. It may, thus, signify attaining literacy ignoring what may happen in the upper rungs of the ladder. However, since the educational process is a continuous phenomenon and each level plays a crucial role in determining the development path of an economy, the hierarchical distribution of education should not be ignored. It is as important in India as it is in the context of any advanced or other developing countries. An important point in this connection is that in order to improve the lower levels of education, both in quality and access, it is essential to strengthen the provision at the higher levels, so that teachers and school administrators are available in adequate numbers and with adequate skills to man and manage the lower levels of education effectively. This study, however, does not take into account the interdependence of different stages of the educational system including higher education, which remains a limitation of the present paper.

Given this backdrop, the present study attempts to make an account of the hierarchical distribution of education in India. The latter is captured by computing the transition rate of enrolment at successive levels of education. Accordingly, the remaining sections are planned as follows. Section II outlines the concept, database and methodology of the study. In section III, the scenario of the hierarchy of education in India and in its constituent states and union territories is presented. Section IV summarizes and concludes the study.

II. Concept, Database and Methodology

The dictionary meaning of hierarchy is a system of persons or things arranged in graded order (http://en.wikipedia.org/wiki/Hierarchy). In effect, it refers to a structure made up of different levels. Hierarchical structures are of one-to-many relationships, each aspect has one or more items below it. Formal education system follows a hierarchical pattern where various stages are passed through like primary, middle, secondary, higher secondary etc. Hierarchical structure of education becomes especially relevant in the distributional context. The latter primarily emphasizes on equity aspects as to how education is distributed amongst different sections of people. Available literature treats literacy level as a key representative of educational performance and consequently, it is considered as the deciding factor for achieving societal goals [Datt and Ravallion, 1996; Rao et al, 1996; LeVine et al, 2004, Pp. 863-877; UNESCO, 2005]. However, distribution of social opportunities and earning differentials do not

necessarily depend upon the attainment of mere literacy. Rather each successive level of education has a bearing on this which may reaffirm the importance of hierarchical distribution of education in India.

In order to study the entire hierarchical structure of educational system, the concept of graph theory is relevant as that presents the structure quite effectively [Deo, 1992]. To be specific, hierarchical structure of educational system can be viewed as a multi-level rooted tree model, where initially, population is divided into literate and illiterate. Then, division is made according to the population having received pre-primary education versus those without it. Similarly, people with pre-primary education are further divided into two categories - those with primary education and without it, and so on.

In this study, four levels of education - primary, middle, secondary and higher secondary - are considered. The primary objective of the study is to find out transition rate of the students from one level to the other in educational ladder. On the basis of the computed values, comparison is made across regions and probable implications are drawn. In order to compute the transition rate, enrolment rate at different levels is used. The underlying justification for considering enrolment rate is that each level of educational structure starts with the enrolments and finally ends up with the outturns who successfully complete the education at that level. In between, there may be drop-outs and also stagnation or repetition. The outturn at each level may join the labour force or enrol at the next level of education. By considering enrolment rate to estimate the transition rate, it is thus possible to capture the dropouts at each level of education [Bhattacharya, 2003, p. 41].

Transition rate is computed following the method developed by Bhattacharya [2003, p. 43]. By doing so, though it may appear to be a re-computation of a variant of the transition rate already computed, the current work presents a more recent position of the computation of the transition rates in India across its major states. Considering the sequential structure of formal education, transition rate may thus be expressed as

$$e_{ijt} = E_{jt} / E_{it-k}$$

where the transition rate from ith to jth (j = i+1) level of education in period t called e_{ijt} is the proportion of enrolments at the ith level in period t-k who continues with education at the next level j. Here k represents the duration of education at ith level. Since the study considers four levels of education, three transition rates - transition rates from primary to middle, middle to lower secondary and lower secondary to higher secondary - are computed for different states and union territories.

Besides transition rate, literacy level of different states and union territories is used to measure group mean literacy. Group mean literacy of a group indicates its weighted average with the proportion of the country's population living in the region used as the weight. To be specific, group mean literacy (G) of a group having n number of states and union territories with literacy levels $L_1, L_2, L_3,...L_n$, respectively is measured as

$$G = \Sigma w_i L_i / \Sigma w_i \text{ where } w_i \text{ is the weight.}$$

The scope of the study is limited to twenty five states and seven union territories. Due to paucity of data on three newly created states namely Jharkhand, Uttarakhand and Chhattisgarh, they are treated as a part of their respective parent states.

The data required for the study were collected from secondary sources. For time series analysis, transition rate is computed for the period 1990-91 to 2007-08 considering lags as required. The time

series enrolment data (table 2) were collected from Educational Statistics, Department of Education, Government of India, 2005 and http://www.indiastat.com. For cross section of 25 states and 7 union territories, the data were taken from http://www.indiastat.com. Data on literacy level (table 1) were taken from Statistical Abstract, Government of India, 2002.

In this respect, it may be mentioned that for time series analysis, available data are restricted to only three levels - primary (I-V), middle (VI-VIII) and secondary (IX-XII). As a result, two transition rates - one at middle level (trm) and another at secondary level (trs) - are computed. Secondary education is subdivided into lower secondary (IX-X) and higher secondary (XI-XII) levels. However, due to lack of separate time series data on these two levels, the present study considers the combined data and treats it as secondary education for the time series analysis. In case of cross section analysis, available data pertain to four levels separately - primary, middle, lower secondary and higher secondary and accordingly, three transition rates - transition rate at middle level (trm), transition rate at lower secondary level (trls) and transition rate at higher secondary level (trhs) - are calculated. Separate comparable data on lower secondary and higher secondary levels for the states and union territories are available for recent years only.

While computing the transition rate between two successive levels of education, periods 2002-03 and 2007-08 are taken as the reference years. The duration of primary level (I-V), middle level (VI-VIII) and lower secondary level (IX-X) are five, three and two years, respectively. To compute the transition rate at the middle level in the years 2002-03 and 2007-08, primary level enrolment data for 1997-98 and 2002-03 and middle level enrolment data for 2002-03 and 2007-08 are used, respectively. Similarly, enrolment data at middle level in 1999-2000 and 2004-05 and that at lower secondary level in 2002-03 and 2007-08 are used to find out the transition rate at lower secondary level in 2002-03 and 2007-08, respectively. For the transition rate at higher secondary level in 2002-03 and 2007-08, enrolment data at the lower secondary level for the periods 2000-01 and 2005-06 and that of higher secondary level for 2002-03 and 2007-08 are considered, respectively. The study also attempts to draw implications of the results for different states and union territories with the help of several socio-economic indicators like gender-related development index (GDI) (table 16), per capita budgeted expenditure on education (table 17), per capita net state domestic product (NSDP) (table 18), people-teacher ratio, availability of trained teachers and female teachers (table 19), level of poverty (table 20) as well as several other evidences drawn from the literature.

The incorporation of higher education is beyond the scope of this study, which remains one of the limitations of the study. It does not, however, suggest that higher education is less significant in the hierarchical distribution of education. The spread of education at previous four levels would be constrained by the non-availability of trained teachers, which depends on higher education beyond the secondary level and the teachers' training courses. Data constraint is one of the reasons for exclusion of higher education. Besides, there are also some operational problems to include higher education in the study. After higher secondary, educational courses are branched out into two different streams namely general and professional. Some of the professional courses are degree courses while some others are diplomas. The period of graduation also varies from one course to another. For general courses, three years are required to complete graduation, whereas for engineering degree courses, it is four years and for medical, it is still longer. It may thus be difficult to collect data on enrolment at higher education. Moreover, the crux of the problems pertaining to educational structure of a developing country like India lies

in its first four levels up to higher secondary. So far, India has not achieved adequate access, equity and quality at the lower classes. There is thus a need to probe into these levels on a priority basis. From the point of view of returns and social equity, education up to secondary level carries greater significance. It is also ascertained that the social rates of return in investment in primary and secondary education usually exceed the rates of return on higher education and investment in basic education can improve equity because it tends to reduce inequalities [World Bank, 1994, p. 25].

III. Findings

III.I. Hierarchical Distribution of Education at the National Level

It is evident from the computed transition rates (table 3) that in India, over the years, transition rates at different levels of education at aggregate level - for both boys and girls combined - have increased steadily with some fluctuations in between. The transition rate at middle level of education for all has increased from a low of 0.389 in 1990-91 to 0.467 in 2007-08. Similarly, the transition rate at secondary education has increased from 0.652 in 1990-91 to 0.861 in 2007-08. However, the country continues to face gender disparity. This is evident from the fact that the boys have experienced greater transition rates at various levels of education than girls. In 1990-91, the transition rates at middle level and secondary level were 0.412 and 0.677 for boys, and 0.355 and 0.606 for girls, respectively. In 2007-08, the same improved to 0.476 and 0.878, respectively for boys, while for girls the improvement was relatively lower at 0.457 and 0.839, respectively. It may be mentioned that during the period 2002-03 to 2006-07, transition rates at middle level for girls are found to have outpaced that for boys. However, there has been a reversal in the following period. Although in course of time, gender differences have lessened, yet parity still remains unattained.

Another important feature is that the transition rate of enrolment at lower level of education is less than that at upper level. This is found to be true for both boys and girls. During the study periods, the transition rate at secondary education for boys was recorded to be almost close to double that achieved at the middle level. The gap between transition rate at secondary and middle level increased for the boys from 0.265 in 1990-91 to 0.402 in 2007-08 and for the girls, from 0.251 in 1990-91 to 0.382 in 2007-08.

One probable explanation attributable to this phenomenon is that in India, quite a significant proportion of people remain poor and thus, they in turn, get viciously trapped by low income, less education, poor health and hygiene, huge unemployment or underemployment, high mortality rate, and the like. Under the circumstances, the dropout rates are reported to be higher with the students at the lower classes despite initial enrolment. The higher level of education becomes primarily the prerogative of the well-off only. Consequently, the dropout rates fall at higher levels. In India, children from the wealthiest households are over 30 percentage points more likely to be in school than those from the poorest households, although this gap varies considerably across states [Filmer and Pritchett, 1998]. As a result, as one moves from lower to upper classes, the chances of educational attainment are likely to increase. It is also found that returns to secondary and higher education are significantly greater than that to primary and middle levels of education [Kingdon and Unni, 2001, Pp. 173-95] and the returns to higher secondary have risen consistently from 1983 to 2004 [Kingdon, 2007, Pp. 173]. Consequently, transition rate is likely to be greater at secondary level than at middle level.

It may, however, be argued that as the economy grows, there is greater possibility of achieving a decline in the percentage of population below poverty line and there is thus likelihood that the increment in per capita income or resources may influence the bottom level of the society more than its other counterparts. Anyanwu and Erhijakpor [2007] argue that compared to developed countries, education systems in developing countries tend to be so severely under-resourced that marginal increases in resources in the latter are likely to have much larger impact on their educational outcomes than in the developed countries. The same argument can be extended to the people within a country, *i.e.*, the increment in per capita income or resources allocated to education may influence the educational outcomes of the bottom level of the society more than those in higher income brackets. The underlying assumption needed to support this argument is that increases in per capita income are not associated with an increase in inequality and increasing exclusion. The studies confirming the positive relationship are mainly based on the facts of the developing countries [Hanushek, 1995; 1996; Checchi, 2003; Tansel, 2002; Wolfe and Behrman, 1984; Shafiq, 2007; Filmer, 2005]. Following panel data analysis for 15 non-special category states of India, Kaur and Misra [2003] also showed that public expenditure on education had stronger effects on educational attainment for relatively poorer states.

It is further evident that over the years, while the country has experienced an upward trend in the transition rate of enrolment at middle level and also at secondary level of education amongst all, there have been some temporary fluctuations in the early 1990s. The nature of fluctuations is recorded to be by and large similar across gender. To illustrate, during the period 1992-94, there was a decline in the values for both boys and girls, while in the following year, the conditions improved. Again during 1995-97, the transition rates at middle level decreased for both boys and girls, while improvement in the scenario was observed thereafter.

Such fluctuations in transition rates during the 1990s may be attributed to the macroeconomic fluctuations and cutbacks in public spending on education that were witnessed in India, thanks to the reforms process. Duryea and Arends-Kuenning [2003] studied the effects of macroeconomic fluctuations on children's school and work behaviour. They particularly focused on whether the income effect or substitution effect dominates as macroeconomic conditions change over time. Their study, after controlling for household characteristics, demonstrated that employment rates for 14-16 year old boys and girls in urban Brazil increased as local market opportunities improved, and children were more likely to leave schools under such circumstances. Improved employment opportunities lured them towards jobs from the schools. In their study, enrolment rate is considered to be influenced by employment opportunities in local market. Higher employment opportunities increase the opportunity cost of studying further and as a result of this substitution effect, more children are likely to leave their schools. If job opportunities for a particular age group are more, transition rate corresponding to that age group is lower. On the other hand, if family income is high, may be due to favourable income or employment opportunities, there will also be a positive income effect which, in the present context, implies an increase in consumption of education good leading to higher enrolments. It is the relative strength of the two effects that decides the overall impact of macroeconomic behaviour.

III.II. Hierarchical Distribution of Education across States and Union Territories

The preceding section analysed the educational situation of India in the post liberalisation era at the national level. However, India not only

encompasses a vast landscape, but it is also a land of great diversity. Socio-economic and cultural climates vary widely from region to region. Hence, time series analysis of hierarchical distribution of education at the national level may not reflect the full scenario. Considering the heterogeneous distribution of education among different states, state-wise and union- territory-wise analyses of educational structure may unfold region specific situations for targeted interventions. The current section thus presents the transition rates of the states and union territories and draws implications thereof.

Before the results are presented, the following classification schemes need to be mentioned. First, on the basis of the order of the transition rates, various regions are clubbed together to infer a pattern of educational enrolment across educational levels. There are six cases on the basis of the order of the transition rates - case I (trbm<trbls<trbhs and trgm<trgls<trghs), case II (trbm<trbhs<trbls and trgm<trghs<trgls), case III (trbls<trbm<trbhs and trgls<trgm<trghs), case IV (trbls>trbm>trbhs and trgls>trgm>trghs), case V (trbm>trbhs>trbls and trgm>trghs>trgls) and case VI (trbm>trbls>trbhs and trgm>trgls>trghs).

For cases I and II, transition rate at middle level carries the lowest value. On the other hand, for cases III, IV, V and VI, the transition rate at middle level (trm) is higher than at least one of the other two transition rates. Accordingly, cases having certain common characteristics are clubbed and only two groups are finally created. For the sake of convenience, the states and union territories under cases I and II are treated as group 1, while the rest fall under group 2. Subsequently, group mean literacy for the respective groups is computed to elicit specific patterns, if any, for the individual groups.

The rationale behind this classification is to analyse the performance of the states and union territories on education front and consequently, to take up (selected) individual states and union territories in each group for a pointed discussion about their failures or successes in respect of transition rates and implied failures or successes in policy interventions at different educational levels in the specific context of these states and union territories. It may be mentioned that while judging the educational status of any state or union territory, those which record higher transition rates at the middle level can be considered better performers. Higher values of transition rate at lower levels indicate that greater proportion of people enter into the educational system early, whereas lower values indicate that large sections of the people are out of the system at very initial level. It may be emphasised that only if greater enrolment is attained at the lower level of education, there is a possibility for a state to attain greater levels of enrolment at the subsequent levels. If a state fails to achieve this, it will naturally fail in achieving appreciable level in higher education. It may further be argued that in a country like India where a significant proportion of the people are still illiterate - the rate varying from 52 per cent in Bihar to 9 per cent in Kerala - higher transition rate at the lower level of education may be considered as an achievement in itself. It also follows the stipulations of the Right to Education Act, which primarily puts emphasis on universalisation of primary education in the country and guarantees free and compulsory education to all children in the age group of six to fourteen [The Gazette of India, 2009].

It is further important to note that not only the order of the transition rates but also their values carry enormous significance to gauge the educational status of any region. The study thus attempts to draw attention to states and union territories in cases of which the transition rates are very low or have declined over time and those in which these have dropped substantially at some education level(s). Consequently, it tries to find out possible reasons for such failures. Besides, by

presenting the order of the transition rates at two different time periods, the study also tries to find out how different regions have witnessed changes in their status over time and draws implications thereof.

Turning to the results, unlike the time-series analysis at the national level, the cross section analysis indicates different patterns of hierarchical ordering of transition rates across different states and union territories. In case of boys, in some states and union territories, the transition rates have registered an increase over time and also over educational levels, while in others, there have been decreases. Interestingly, there are some states and union territories, where no such specific pattern is observed (table 10). For these latter states and union territories, the transition rate at lower secondary level has been higher than that at middle and higher secondary levels (trbm<trbls>trbhs) or the reverse is true (trbm>trbls<trbhs). However, in 2007-08, one particular order of transition rate *i.e.*, trbm>trbhs>trbls is not observed anywhere (table 11).

The findings suggest that in case of boys, in 2007-08, the states and union territories belonging to group 2 were Kerala, Maharashtra, Tamil Nadu, Punjab, Rajasthan, Himachal Pradesh, Haryana, Madhya Pradesh, Assam, Manipur, Meghalaya, Puducherry, Goa, Nagaland, Andaman & Nicober Islands, Chandigarh and Delhi. On the other side, Bihar, Odisha, Uttar Pradesh, West Bengal, Gujarat, Karnataka, Andhra Pradesh, Arunachal Pradesh, Jammu & Kashmir, Sikkim, Tripura, Dadra & Nagar Haveli, Daman & Diu, Lakshadweep and Mizoram formed group 1 (tables 10 and 11). The former group is considered relatively a better performer compared to the latter since the states and union territories belonging to the former record higher transition rates at middle level. It is pertinent to note that two poorer states, namely, Bihar and Odisha, have witnessed deterioration in their educational performance over time, as they have moved from group 2 in 2002-03 to group 1 in 2007-08. However, two other major states, *viz.* Punjab and Haryana, have recorded an improvement during the same period. In case of girls also, there is no single pattern of ordering of transition rates across the country (tables 12 and 13). In 2007-08, the regions, which fell under group 1 were Bihar, Rajasthan, Uttar Pradesh, West Bengal, Gujarat, Karnataka, Andhra Pradesh, Arunachal Pradesh, Jammu & Kashmir, Andaman & Nicobar Islands, Dadra & Nagar Haveli, Daman & Diu, Lakshadweep, Mizoram and Tripura, while the rest formed group 2.

But enrolment pattern for both girls and boys is recorded to be, by and large, similar by considering it in terms of transition rates. Considering 2007-08, only a few states and union territories like Andaman & Nicobar Islands, Gujarat, Kerala, Nagaland, Odisha, Puducherry, Rajasthan, Sikkim, Tripura and Uttar Pradesh exhibit different order of the transition rates between boys and girls. For example, in both Gujarat and Uttar Pradesh, trgm<trgls<trghs for girls, but trbm<trbhs<trbls for boys. It possibly means that girls from well-to-do families alone transition to higher levels of education, while boys drop out at lower rate from lower to higher secondary level than from middle to lower secondary level. However, in both the states, for both boys and girls, trm is the lowest. Similarly, in 2007-08, in Puducherry, trbm>trbls>trbhs for boys but for girls, it is trgm>trghs>trgls. It may possibly again imply that girls from well-to-do families alone transition to higher secondary schools in this state. Interestingly, trm is found to be the highest for both boys and girls. Comparing two time periods, it is found that in case of girls also, Haryana and Punjab have witnessed improvement as they have moved from group 1 to group 2 along with Himachal Pradesh and Chandigarh.

However, the states, which have receded in their positions, are Bihar, Rajasthan, Karnataka, Tripura and Jammu & Kashmir.

Turning to the order of the transition rates at the aggregate, by and large, similar situation appears to have prevailed (tables 14 and 15). If one considers major states only, it is found that in Bihar, Uttar Pradesh, Rajasthan, Andhra Pradesh and West Bengal, transition rate at middle level remains lower. On the contrary, major states, which have consistently fared well, are Kerala, Tamil Nadu and Maharashtra. During the two study periods, three major states, which have witnessed shift from group 1 to group 2 are Haryana, Punjab and Madhya Pradesh, while states like Bihar, Rajasthan and Karnataka have seen deterioration in their status.

Ranks by group mean literacy corresponding to two groups are found to be similar for both boys and girls as well as in the aggregate. In this context, there is a need to understand why particular inequalities among three transition rates have any particular relationship with the group mean literacy levels. As envisaged earlier, the group of states and union territories for which the transition rate at middle level is higher, experience, by and large, higher group mean literacy. The values of the group mean literacy for group 1 regions for boys, girls and total are estimated to be 74.17, 52.06 and 63.45, while that for group 2 regions are 76.73, 55.19 and 66.66, respectively. The group for which trm is greater than at least one of the two other transition rates, may be said to have outperformed the rest in terms of educational awareness. This includes those regions which follow monotonically decreasing order of transition rate (trm>trls>trhs). The regions for which transition rates are not monotonically decreasing, trm may still remain greater than two other transition rates (trm>trhs>trls). In a few other regions, trm is either greater than trls or trhs (trls>trm>trhs or trls<trm<trhs). On the other hand, the states and the union territories for which transition rate at middle level is the least may be said to have been the poor performers on education front.

The higher value of transition rate at the middle level may not, however, be always associated with higher literacy levels. Evidently, there are many states and union territories which have registered relatively higher literacy rates but they do not record higher values of transition rate at the middle level, *e.g.*, in Mizoram, trbm was only 0.388 in 2007-08, though male literacy rate was very high (91 per cent). The opposite is also true for some states and union territories, *e.g.*, in Assam, trgm was quite high (0.5898) in 2007-08, even though female literacy rate was very poor. Only 56 per cent of females were literate. It may thus be stated here that although literacy rate emerges as an important indicator exhibiting societal awareness towards achieving greater educational enrolment, in order for the states to realise higher transition rate at the middle level, they must also ensure, *inter alia,* improved income and health, improved school characteristics, targeted schemes for the poor, including the scheduled castes and the scheduled tribes, and women. The socioeconomic factors like income, dependency ratios, caste composition, gender ratio, parental education and motivation, work opportunities, etc, and school characteristics like posting of the teachers, their regularities in attendance, mid-day meals, etc, may influence the educational performance at various levels of education [Azam and Blom, 2008; Drèze and Kingdon, 2001].

It is further important to note that not only the order of the transition rates but also their values carry enormous significance to gauge the educational status of any region. If one chooses to consider 0.5 as a satisfactory transition rate at any level of enrolment, one finds that in 2002-03 and 2007-08, respectively, as many as 16 states including some major states like Bihar (0.24 and 0.38), Odisha (0.37 and 0.43) West Bengal (0.38

and 0.39), Uttar Pradesh (0.42 in 2007-08), Gujarat (0.44 and 0.41) and Andhra Pradesh (0.40 and 0.44) have recorded transition rate much below 0.50 at middle level (table 14). These are also the states, where transition rates at the middle level are found to have been lower than two other transition rates, Odisha being the only exception. In Odisha, though trm is higher than trhs, the value of trm remains extremely low. Surprisingly, in Uttar Pradesh, trls and trhs for both boys and girls are very high (greater than 0.75 in 2007-08). However, it has failed significantly at the middle level as the transition rate at the aggregate was only 0.42 in 2007-08. In the case of Rajasthan, in 2007-08, all the transition rates were greater than 0.5 for boys but for girls, transition rates at two successive lower levels were low at 0.42 and 0.48, respectively. Evidently, in Rajasthan, girls witness discriminatory treatment and a lower priority in education compared to their counterparts.

There are also states and union territories, which have experienced decline in transition rates at all levels during the study period (table 14). In trm, as many as 8 states and union territories including Uttar Pradesh, Gujarat, Maharashtra, Himachal Pradesh and Haryana have witnessed a decline in value in 2007-08 compared to that in 2002-03. In trls, as many as 11 such regions have recorded a decline. The major states witnessing decline in this respect are Uttar Pradesh, Haryana, Maharashtra, Himachal Pradesh, Punjab and Madhya Pradesh. Turning to trhs, about 6 states including Andhra Pradesh, Himachal Pradesh, Gujarat and Rajasthan have experienced decrease in values.

In this respect, yet another disquieting feature is that Odisha, Assam and Bihar have shown consistently low transition rates at all the levels for both boys and girls. At the same time, they also have recorded extremely low transition rate at higher secondary level (as low as 0.1 in some cases), which persisted more or less uniformly, during both the periods. Though transition rate at the middle level, especially in Odisha and Assam, remain higher than two other transition rates or at least one of these, in terms of absolute value of trm, these states remain far behind Kerala (*e.g.*, in 2007-08, in Odisha and Assam, values of trm were 0.434 and 0.586, respectively, while in Kerala, the value was 0.647) and they maintain low transition rates at successive stages as well. It is imperative, in this context, to state that not only Kerala's trm is high in value and in relation to trls and trhs, it continues to maintain high transition rates at successive levels as well. Interestingly, the union territories like Andaman & Nicobar Islands, Daman & Diu and Lakshadweep, despite having fallen under group 1, have recorded transition rates for both boys and girls greater than 0.5 at all levels.

From the preceding discussions, the following important points emerge. One of the disturbing aspects of the study is that in many parts of the country, the transition rate at lower level of education has remained less than that at upper level. The possibility of a base effect of very high enrolment at the lowest (primary) level may be ruled out since at the state level, Kerala, despite having achieved high enrolment at primary level, continues to witness high transition rate at the middle level. Further, Girls receive discriminatory treatment compared to boys in several states and union territories including Rajasthan, Andhra Pradesh, Bihar, Uttar Pradesh, Madhya Pradesh, Tamil Nadu, Gujarat and Odisha. Especially the states and union territories where trgm<trbm are the ones which exhibit discrimination at the very bottom level of education. It is interesting to note that in most of the north-eastern states, value of trm remains greater for girls than boys. It may be attributed to their unique socio-cultural set up. Also, in these states, missionaries are found to have been playing pivotal role in spreading education among females.

Group1 comprises bigger states, *viz.*, Andhra Pradesh, Bihar, Gujarat, West Bengal, Rajasthan, Uttar Pradesh and Karnataka and smaller ones like Jammu & Kashmir, Arunachal Pradesh, Mizoram, Sikkim and Tripura. Their group mean literacy rate (60.3 per cent) is lower than the literacy rate of the country at large. For this group, the transition rate at higher levels of education is greater than that at middle level even though they are laggards in terms of overall enrolment. This suggests that despite lower literacy in these states, the proportion of drop outs at successive levels of education is comparatively lower. The lower drop out rates at successive levels of education, however, has to be adjudged in the context of the fact that large sections of population in these states not only lie at the bottom in economic ladder but are also further faced with poor educational infrastructure. In the hills and backward regions, a significant proportion of the general populace is cut off from the opportunity of basic education. Only a small section, having got higher levels of income and access to the basic amenities, enrols at the primary level. It is these privileged few who have the resources to see them through the higher levels. As the dropout rate amongst them is negligible, there is a greater transition rate of enrolment at the lower or higher secondary level compared to the middle level. To be precise, in the states belonging to this category, only a selected few enrol in the primary level and that entire group may have the means and abilities to continue at the higher levels.

Among the states experiencing low or declining transition rates, Odisha, Assam Bihar and Uttar Pradesh may need special attention. The low transition rates for the above-mentioned states clearly indicate that in our effort towards achieving mass education, this group of states lags behind. Other major states, which have failed on the education front in some form or the other, are Andhra Pradesh, Rajasthan, Gujarat, West Bengal and Karnataka.

One of the interesting observations of the study is that Gujarat, which has been doing exceedingly well on the income front over the last many years, appears to have failed on the education front on several counts. On the one hand, the state falls under group 1 having recorded trm below trls or trhs. On the other hand, it also records very low transition rates at almost all levels (trm, trls and trhs are 0.411, 0.522 and 0.525, respectively in 2007-08) compared to some other fast growing states like Tamil Nadu (with trm, trls and trhs 0.574, 0.558 and 0.652, respectively, in 2007-08), Haryana (with trm, trls and trhs 0.548, 0.528 and 0.826, respectively, in 2007-08) and Maharashtra (with trm, trls and trhs 0.495, 0.475 and 0.637, respectively, in 2007-08) and a decline over time in transition rate at middle level (0.432 in 2002-03 and 0.378 in 2007-08). Besides, it also exhibits discrimination between gender as girls' transition rates at middle and lower secondary level remain below boys'. All these suffice to state that the income growth has not benefited the social sector in the state. This possibly indicates inadequate public action towards promotion of primary and secondary education in the state. Poor per capita budgeted expenditure on education is perhaps a testimony to that. It is found that in 2006-07, Gujarat made a per capita budgeted expenditure of a meagre Rs 940 compared to Rs 1680 in Kerala, Rs 1217 in Tamil Nadu, 1413 in Maharashtra and Rs 1113 in Haryana. The other laggard states with low per capita budgeted expenditure, in this respect, are Bihar (Rs 592.42), Uttar Pradesh (Rs 642), Odisha (Rs 728.1), Rajasthan (Rs 814.62), West Bengal (Rs 774.14) and Madhya Pradesh (Rs 653.42) (table 17). The latter states witness a backward rural economy, where people cannot even afford primary education and are mainly dependent on state funding.

Amongst all, Kerala is an outperformer in education front in more than one way. It is a leading state in group 2 maintaining the order trm>trls>trhs. It registers very high transition rates especially at middle (0.647 in 2007-08) and

secondary (0.626 in 2007-08) levels. Compared to other major states, gender differences in Kerala are also less pronounced, which are evident from its high values of transition rates for girls (trgm: 0.638; trgls: 0.648; trghs: 0.569 for 2007-08). The success story of Kerala may be attributed to, as Sukumaran [2002] suggests, impressive educational structure, availability of schools in the immediate vicinity of the households (both rural and urban areas alike), the work in the field of education by Christian missionaries, instruction in vernacular, job opportunities and better socio-economic status. According to Sukumaran (2002), in the early part of twentieth century, social reformers like Sri Narayan Guru, Sri Aiyyarkali, etc, in their historic and revolutionary pursuit of uplifting the socially backward sections in Kerala, had emphasised the importance of acquiring formal education.

In relative terms, the other better performing state is Tamil Nadu. This is evident from the fact that Tamil Nadu not only belongs to group 2 having recorded trm greater than trls but it also maintains relatively higher transition rates at all levels (trm, trls and trhs are 0.774, 0.558 and 0.652, respectively in 2007-08).

Compared to these states, better performance in some union territories like Puducherry, Andaman & Nicobar Islands and Chandigarh may be largely attributed, *inter alia*, to their smallness and direct central assistance.

Andhra Pradesh, Uttar Pradesh, Rajasthan, Karnataka, West Bengal, Bihar, Assam and Odisha, which experience very low trm or trm lower than the rest, are the ones, which witness high dropout rates at the middle level despite enrolment at the primary stage. These are also the states, which record very low per capita income. In 2007-08, per capita NSDP of Bihar, Uttar Pradesh, Assam, Odisha, West Bengal and Andhra Pradesh were Rs 8703, Rs 11939, Rs 13072, Rs 16149, Rs 23229 and Rs 25044, respectively. On the other hand, Haryana, Himachal Pradesh, Punjab and Kerala, which registered per capita incomes of Rs 39796, Rs 30586, Rs 31439 and Rs 32961, respectively (table 18), have achieved high transition rate at middle level. In 2006-07, Bihar (43.18 per cent) recorded the highest incidence of poverty followed by Odisha (41.04 per cent), Assam (33.33 per cent), Madhya Pradesh (29.52) and Uttar Pradesh (24.67 per cent), while percentage of population below poverty line was only 3.61 per cent in Kerala and 6.61 per cent in Tamil Nadu (table 19). Poverty keeps children out of school and forces them to join the class of child labour [Shafiq, 2007]. Evidently, due to high incidence of poverty in some eastern and northern states of India, the magnitude of child labour has increased in 2001 compared to that in 1991. The percentage of child labour in Bihar, Uttar Pradesh, West Bengal and Rajasthan has increased, from 8.3 per cent, 12.5 per cent, 6.3 per cent and 6.9 per cent to 8.8 per cent, 15.2 per cent, 6.8 per cent and 10 per cent, respectively (table 20). A pilot time-use survey conducted by the Department of Statistics, Government of India, in six states (Odisha, Madhya Pradesh, Gujarat, Tamil Nadu, Haryana and Meghalaya), shows that boys and girls spend 21.46 hours a week on System of National Accounts (SNA) activities, which is about 47 percent of the time spent by an adult on the same. Girls (in the age group 6-14) in these states participate in extended SNA activities much more than participating men of all ages [Burra, 2007].

In India, girls are discriminated against boys on several counts, thanks to the prevalent skewed social norms. Low educational enrolment among girls especially in states like Rajasthan, Gujarat, Madhya Pradesh and Bihar may be attributed to the practice of early marriages in these states. The median age of marriage as per National Family Health Survey (NFHS) II is less than or equal to 15 in Rajasthan, Bihar, Uttar Pradesh, Madhya Pradesh and Andhra Pradesh. Rural areas of Rajasthan and Uttar Pradesh show a tendency of

very early marriages among women. In rural Rajasthan, there are still 15 per cent of women between 15 and 19, who married before the age of 13 and it is 10 per cent in rural Uttar Pradesh [IIPS, 1999]. Though District Level Household Survey (DLHS) III for the year 2007-08 indicates some improvement in the mean age of marriage for girls, still about 50 per cent of girls in Uttar Pradesh get married below the age of 18. The scenario in Bihar (45.9 per cent), Rajasthan (39.9 per cent), West Bengal (41.3 per cent) and Assam (18.6 per cent) is no better (table 20). Considering gender-related development index (GDI), it can be stated that girls are severely discriminated against in states like Bihar, Odisha, Rajasthan, Uttar Pradesh, Madhya Pradesh and Assam. The GDI remains lowest in Bihar (0.479) followed by Uttar Pradesh (0.509), Madhya Pradesh (0.516), Odisha (0.524), Rajasthan (0.526), Andhra Pradesh (0.574) and Assam (0.585). Compared to these, Kerala's GDI is as high as 0.745 (table 16).

The present study further finds that many states showing poor performance in education according to our criterion also show failure in providing adequate teachers in schools. In 2007-08, pupil-teacher ratio at the primary level was as high as 76 in Uttar Pradesh, 68 in Bihar, 53 in Haryana and 51 in West Bengal as against only 28 in Kerala. Ironically, percentage of schools with single teacher was a high of 29 per cent in Gujarat, 23.7 per cent in Bihar and 22.1 per cent in Odisha. Compared to these states, Kerala and Tamil Nadu have hardly any schools, which have only one teacher each. With regard to availability of female teachers at the primary level, while Kerala and Tamil Nadu have achieved staggering 74.92 per cent and 73.97 per cent, Odisha (38.60 per cent), Rajasthan (30.67 per cent), West Bengal (28.59 per cent), Bihar (36.08 per cent) and Assam (35.09 per cent) have lagged far behind. The availability of trained teachers in the schools of Tamil Nadu, Karnataka and Kerala is found to be 100 per cent, while in Assam, it is as low as 64 per cent at the primary level and a meagre 29 per cent at secondary and higher secondary level. Especially at the primary level, the situation seems to be only a little better in Bihar (85 per cent), West Bengal (83 per cent), Odisha (88 per cent) and Rajasthan (85 per cent) than in Assam but still much worse than Tamil Nadu, Karnataka and Kerala. West Bengal and Rajasthan continue to witness similar situations at later stages of education as well (table 21).

Notwithstanding above constraints, better social awareness about the value of education is stated to be an important parameter for better educational outcome [Planning Commission, 2010]. It carries enormous significance for those states, where there is larger discrimination against girls. This social awareness, *inter alia*, in Kerala, Meghalaya and Puducherry, have possibly ensured mass enrolment at the primary level. Because of higher social awareness, all the students of this group are likely to graduate to the next level. This is an indication of an enlightened society where every one at least achieves basic education. What is, however, likely is that although the percentage of students going on to achieve higher levels of education in these places remains greater than that in the underdeveloped ones, the transition rates at successive levels gradually decrease. It can be understood from the fact that students dropping out at each stage have greater probability of being successfully employed due to better socio-economic conditions of these states and union territories. Only those who have inclination towards higher education or want to equip themselves with some vocational/technical knowledge are likely to pursue higher levels of education. The above discussion also explains why for the other groups for which transition rates are not monotonically decreasing (Tamil Nadu, Maharashtra, Himachal Pradesh, Haryana, Madhya Pradesh and Punjab), the high transition rate at the middle level remains crucial (tables 14 and 15).

The preceding discussions clearly point to the need for renewed public action, on the one hand and participation of communities, non-government organisations and civil societies on the other for effective delivery and awareness creation, on the other. The states and union territories which have fared well on the educational front are the ones, which have possibly witnessed better state support, parental awareness for minimum education, improved school characteristics in terms of access, distance, facilities, etc. It is, in this context, important that the failing states draw special focus, *inter alia*, upon greater state support through higher public expenditure on education, effective monitoring and supervision with the help of an efficient government and non-government machinery, creation of greater awareness for minimum education with special emphasis on the disadvantaged groups including girls and improvement in school characteristics.

IV. Conclusions

It may be recapitulated that over the years, in India, though transition rates have increased steadily, there still remains room for further improvement. The states and union territories belonging to group 1 are generally considered laggard ones with lower values of trm compared to at least any one of the two other transition rates. However, some other states like Odisha and Assam, despite having fallen in group 2, remain vulnerable for their persistently low transition rates at all levels as well as discrimination against girls. Gujarat is yet another state, which has failed miserably on the educational front despite its praiseworthy performance on income front. Compared to these states, Kerala and Tamil Nadu are the two such states, which have fared relatively well at almost all levels of education. What is disturbing is that gender differences persist at almost all levels of education. Rajasthan, Andhra Pradesh, Bihar, Uttar Pradesh, Madhya Pradesh, Gujarat and Odisha are some such states, where discrimination against girls is more pronounced.

The present study, while comparing the states and union territories, find glaring differences between better and poor performing regions in several socio-economic and institutional parameters. We have adduced evidence that states and union territories showing poor performance on the basis of our criteria based on transition rates, compared to their better counterparts, are faced with low per capita income, high poverty, poor public expenditure on education, high pupil-teacher ratio, inadequate female and trained teachers, and low literacy rates. There seems to be inadequate public action for social sector development, on the one hand, and lack of awareness, on the other, that deter these states to perform better on the educational front.

To conclude, it may thus be said that there is profound logic behind universalisation of elementary education in India. While attempting to achieve this, there is a need for greater public action especially to raise the transition rate at middle level of education in those regions, where it is very low or is the least. Improvement in economic status of the laggard regions and poverty reduction may also remain crucial. It may be equally imperative to undertake awareness campaign through government and non-government machineries for achieving greater enrolment, particularly among girls.

Table 1. Male, Female and Total Literacy Rates of Different States and Union Territories

Sl. No.	States / UTs	Literacy Rate (in percentage)		
		Female	Male	Total
(1)	(2)	(3)	(4)	(5)
1.	Andhra Pradesh	51	71	61
2.	Arunachal Pradesh	44	64	55
3.	Assam	56	72	64
4.	Bihar	34	60	48
5.	Chhattisgarh	52	78	65
6.	Goa	76	89	82
7.	Gujarat	59	81	70
8.	Haryana	56	79	69
9.	Himachal Pradesh	68	86	77
10.	Jammu & Kashmir	42	66	54
11.	Jharkhand	39	68	54
12.	Karnataka	57	76	67
13.	Kerala	88	94	91
14.	Madhya Pradesh	50	77	64
15.	Maharashtra	68	86	77
16.	Manipur	60	78	69
17.	Meghalaya	60	66	63
18.	Mizoram	86	91	88
19.	Nagaland	62	72	67
20.	Odisha	51	76	64
21.	Punjab	64	76	70
22.	Rajasthan	44	76	61
23.	Sikkim	61	77	70
24.	Tamil Nadu	65	82	73
25.	Tripura	65	81	74
26.	Uttar Pradesh	43	70	57
27.	Uttaranchal	60	84	72
28.	West Bengal	60	78	69
29.	A & N Islands	75	86	81
30.	Chandigarh	77	86	82
31.	D &N Haveli	43	73	60
32.	Daman & Diu	70	88	81
33.	Delhi	75	87	82
34.	Lakshadweep	82	93	88
35.	Puducherry	74	89	81

Table 2. Year-Wise Enrolment at Various Levels of Education in India

(in Crore)

Sl. No.	Year	Primary (I- V)			Middle/ Upper Primary (VI- VIII)			Lower and Upper Secondary (IX- XII)		
		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1.	85-86	5.22	3.52	8.74	..	..	..	..	..	..
2.	86-87	5.17	3.54	8.71	..	..	..	..	..	..
3.	87-88	5.35	3.70	9.05	1.89	1.04	2.93	..	..	..
4.	88-89	5.38	3.74	9.12	1.93	1.07	3.00	..	..	..
5.	89-90	5.43	3.81	9.24	1.98	1.11	3.09	..	..	..
6.	90-91	5.70	4.04	9.74	2.15	1.25	3.40	1.28	0.63	1.91
7.	91-92	5.86	4.23	10.09	2.20	1.36	3.56	1.35	0.69	2.04
8.	92-93	5.79	4.17	9.96	2.12	1.29	3.41	1.36	0.69	2.05
9.	93-94	5.51	4.19	9.70	2.06	1.35	3.41	1.32	0.75	2.07
10.	94-95	6.00	4.51	10.51	2.21	1.43	3.64	1.42	0.79	2.21
11.	95-96	6.09	4.62	10.71	2.27	1.48	3.75	1.46	0.83	2.29
12.	96-97	6.14	4.68	10.82	2.29	1.52	3.81	1.53	0.87	2.40
13.	97-98	6.23	4.80	11.03	2.36	1.59	3.95	1.61	0.93	2.54
14.	98-99	6.27	4.82	11.09	2.40	1.63	4.03	1.73	1.05	2.78
15.	99-2000	6.41	4.95	11.36	2.51	1.70	4.21	1.72	1.10	2.82
16.	2000-01	6.40	4.98	11.38	2.53	1.75	4.28	1.69	1.07	2.76
17.	2001-02	6.36	5.03	11.39	2.61	1.87	4.48	1.84	1.21	3.05
18.	2002-03	6.51	5.73	12.24	2.63	2.06	4.69	1.85	1.31	3.16
19.	2003-04	6.83	5.99	12.82	2.73	2.15	4.88	2.06	1.44	3.50
20.	2004-05	7.01	6.16	13.17	2.87	2.30	5.17	2.17	1.54	3.71
21.	2005-06	7.05	6.15	13.20	2.89	2.33	5.22	2.23	1.61	3.84
22.	2006-07	7.11	6.26	13.37	2.99	2.46	5.45	2.30	1.69	3.99
23.	2007-08	7.11	6.44	13.55	3.10	2.62	5.72	2.52	1.93	4.45

Source: Educational Statistics, Department of Education, Government of India, 2005, http://www.education.nic.in/htmlweb/edusta.htm) and (http://www.indiastat.com)

Table 3. Year-Wise Transition Rate at Various Levels of Education in India

Sl. No.	Year	Transition Rate for boys		Transition Rate for girls		Transition Rate for total students	
		trbm	trbs	trgm	trgs	trm	trs
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	90-91	0.412	0.677	0.355	0.606	0.389	0.652
2.	91-92	0.426	0.699	0.384	0.645	0.409	0.680
3.	92-93	0.396	0.687	0.349	0.622	0.377	0.663
4.	93-94	0.383	0.614	0.361	0.600	0.374	0.609
5.	94-95	0.407	0.645	0.375	0.581	0.394	0.621
6.	95-96	0.398	0.689	0.366	0.643	0.385	0.672
7.	96-97	0.391	0.743	0.359	0.644	0.378	0.704
8.	97-98	0.408	0.729	0.381	0.650	0.397	0.698
9.	98-99	0.436	0.762	0.389	0.709	0.415	0.741
10.	99-2000	0.418	0.751	0.377	0.724	0.401	0.740
11.	2000-01	0.415	0.716	0.379	0.673	0.400	0.699
12.	2001-02	0.425	0.767	0.400	0.742	0.414	0.757
13.	2002-03	0.422	0.737	0.429	0.771	0.425	0.751
14.	2003-04	0.435	0.814	0.446	0.823	0.440	0.818
15.	2004-05	0.448	0.831	0.465	0.824	0.455	0.828
16.	2005-06	0.452	0.848	0.468	0.782	0.459	0.819
17.	2006-07	0.470	0.842	0.489	0.786	0.478	0.818
18.	2007-08	0.476	0.878	0.457	0.839	0.467	0.861

Note: trm: Transition rate of enrolment at middle level education for all; trs: Transition rate of enrolment at secondary level of education for all; trbm: Transition rate of enrolment at middle level education for boys; trbs: Transition ra

Source: Computed from the data collected from Educational Statistics, Department of Education, Government of India, 2005, http://www.education.nic.in/htmlweb/edusta.htm and http://www.indiastat.com.

Table 4. Enrolment at Different Levels of Education for All Students according to States and Union Territories

Sl. No.	States / UTs	1997-98 tep	2002-03 tem	1999-2000 tem	2002-03 tels	2000-01 tels	2002-03 tehs
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Andhra Pradesh	8369482	3366950	2681706	1463352	1252696	1034570
2.	Arunachal Pradesh	149719	58417	51582	24715	22153	13252
3.	Assam	3816603	1058295	1483164	497500	586061	103563
4.	Bihar	10266989	2454983	2548580	1065788	1252733	147698
5.	Goa	125717	74555	72196	38531	38539	18545
6.	Gujarat	5910773	2602609	2153850	1093789	1023636	623379
7.	Haryana	2096106	1099410	905247	553236	498725	376429
8.	Himachal Pradesh	694412	439613	360189	222975	208644	140752
9.	Jammu & Kashmir	893005	502915	405698	215311	218644	118714
10.	Karnataka	6389406	2787659	2417210	1265117	1182569	437883
11.	Kerala	2749535	1704991	1788772	1040489	1049430	436047
12.	Madhya Pradesh	10161269	4214362	3600221	1493263	1257564	680633
13.	Maharashtra	11879899	5957208	5487080	2815398	2608027	982645
14.	Manipur	236920	124910	119263	62921	64680	21238
15.	Meghalaya	302518	104420	91540	44056	34549	7662
16.	Mizoram	134091	51349	46482	21878	23988	10338
17.	Nagaland	203689	59244	62842	21579	28194	2980
18.	Odisha	3945000	1473245	1429000	679272	653000	73527
19.	Punjab	2121310	1007386	996196	502393	553018	286671
20.	Rajasthan	6860625	2513345	3255562	982525	891660	474380
21.	Sikkim	84986	28083	25793	11507	8324	6178
22.	Tamil Nadu	6814039	3517039	3343468	1680747	1551476	984516
23.	Tripura	440886	180513	154365	82637	71582	29861
24.	Uttar Pradesh	13707742	7076545	4913024	4110894	2400805	1538003
25.	West Bengal	8907736	3398454	2906246	1374153	1235795	667847
26.	A & N Islands	39967	21835	22384	11232	11263	6093
27.	Chandigarh	65978	40930	38386	24207	23907	20498
28.	D &N Haveli	25003	11081	7535	3797	3071	1850
29.	Daman & Diu	14868	8374	6952	3507	3748	2065
30.	Delhi	1261359	834908	623135	351350	332631	230891
31.	Lakshadweep	8362	4867	4444	2555	2158	961
32.	Puducherry	103798	66712	63086	35061	32017	18229
	India	108781792	46845207	42065198	21795735	19125287	9497898

Note: tep: Total enrolment at primary level; tem: Total enrolment at middle level; tels: Total enrolment at lower secondary level; tehs: Total enrolment at higher secondary level.
Source: http://www.indiastat.com

Table 5. Enrolment at Different Levels of Education for All Students according to States and Union Territories

Sl. No.	States / UTs	2002-03 tep	2007-08 tem	2004-05 tem	2007-08 tels	2005-06 tels	2007-08 tehs
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Andhra Pradesh	8615608	3786202	3643030	2038141	1903449	1430572
2.	Arunachal Pradesh	171792	73029	59670	32819	28605	17577
3.	Assam	3128986	1832345	1389755	580329	636733	139140
4.	Bihar	12333436	4647514	3133248	1683706	1345557	588653
5.	Goa	111926	64782	73446	37798	37543	26914
6.	Gujarat	6335398	2604729	2473535	1290763	1191739	625124
7.	Haryana	2124184	1163643	1184814	625381	541057	446730
8.	Himachal Pradesh	720842	424656	418802	249283	350717	161308
9.	Jammu & Kashmir	1090939	479336	456897	219208	219208	144225
10.	Karnataka	6286455	2996247	2946302	1552447	1315875	967989
11.	Kerala	2496100	1613855	1628030	1018355	1045855	538227
12.	Madhya Pradesh	10461931	6061367	5463263	2276854	1804766	1295157
13.	Maharashtra	10900033	5398019	6188552	2940311	2978861	1897273
14.	Manipur	356799	147595	137300	78765	75924	24804
15.	Meghalaya	391730	180466	136840	57555	51073	11171
16.	Mizoram	134150	53071	51514	28137	25066	12816
17.	Nagaland	167972	90226	85620	32000	35056	20634
18.	Odisha	4509693	1958667	1840933	877538	867242	374642
19.	Punjab	1890013	1080202	1042094	495933	534081	343450
20.	Rajasthan	7846501	3754045	3156811	1603483	1313886	709586
21.	Sikkim	79058	31366	28683	11634	11504	6945
22.	Tamil Nadu	6468257	3709961	3697858	2063012	1924961	1255511
23.	Tripura	449465	205865	187590	92788	90155	46993
24.	Uttar Pradesh	23868024	9920502	7650274	6065634	4545776	3788543
25.	West Bengal	9774543	3807261	3622026	1723541	1599208	991542
26.	A & N Islands	39625	22448	23429	13175	12483	7727
27.	Chandigarh	65483	44838	37716	25094	25503	24526
28.	D &N Haveli	32476	14833	11857	6105	5446	3597
29.	Daman & Diu	16258	8420	8160	4766	4336	2726
30.	Delhi	1425508	955433	822492	449400	409455	325435
31.	Lakshadweep	7353	4358	4110	2491	2705	2046
32.	Puducherry	97177	69423	67096	41251	40240	25487
	India	122397715	57204704	51671747	28217697	24974065	2E+07

Note: tep: Total enrolment at primary level; tem: Total enrolment at middle level; tels: Total enrolment at lower secondary level; tehs: Total enrolment at higher secondary level.
Source: As cited in table 4.

Table 6. Enrolment at Different Levels of Education for Boys according to States and Union Territories

Sl. No.	States / UTs	1997-98 bep	2002-03 bem	1999- 2000 bem	2002-03 bels	2000-01 bels	2002-03 behs
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Andhra Pradesh	4389148	1805755	1506715	817700	718687	631240
2.	Arunachal Pradesh	82406	31560	28244	14310	13181	8084
3.	Assam	2024781	551884	840134	260141	330664	62205
4.	Bihar	6445313	1561762	1739641	719330	924077	99354
5.	Goa	65075	39370	38516	20108	19989	9146
6.	Gujarat	3377545	1507636	1246685	655451	607165	363344
7.	Haryana	1109713	611170	506271	322043	290449	227457
8.	Himachal Pradesh	351856	231185	191858	117448	111812	77562
9.	Jammu & Kashmir	519196	285779	253732	124147	127044	71363
10.	Karnataka	3312514	1481007	1318690	680909	653286	258175
11.	Kerala	1418935	891897	928928	521224	518351	197161
12.	Madhya Pradesh	5864390	2505963	2259128	963822	838662	440454
13.	Maharashtra	6243780	3192121	3083303	1556975	1471622	554146
14.	Manipur	126735	64218	62902	32278	33970	11778
15.	Meghalaya	151777	50017	44210	21351	18023	3975
16.	Mizoram	71359	26210	23632	10822	11795	5230
17.	Nagaland	103575	30679	32270	11013	14934	1629
18.	Odisha	2313000	815766	873000	379177	386000	44216
19.	Punjab	1108845	530196	527226	262578	291674	156749
20.	Rajasthan	4148099	1646341	2318980	697140	650635	331850
21.	Sikkim	43193	13611	12772	5806	4332	3152
22.	Tamil Nadu	3518971	1828718	1740179	865546	846259	499619
23.	Tripura	239958	94965	83257	44251	39346	17457
24.	Uttar Pradesh	8638747	4130524	3373061	2662120	1812985	1077244
25.	West Bengal	4862688	1809940	1680355	768211	743560	413726
26.	A & N Islands	20920	11545	11858	5828	5767	3057
27.	Chandigarh	35223	21921	20417	12826	12643	9891
28.	D &N Haveli	14430	6889	4637	2233	1812	1116
29.	Daman & Diu	7762	4478	3704	1949	2078	1200
30.	Delhi	660830	444895	292712	187767	104219	120438
31.	Lakshadweep	4511	2712	2368	1320	1146	509
32.	Puducherry	53969	34753	32966	17871	16632	8908
	India	61329244	26265467	25082351	12763695	11622799	5711435

Note: bep: Enrolment for boys at primary level; bem: Enrolment for boys at middle level; bels: Enrolment for boys at lower secondary level; behs: Enrolment for boys at higher secondary level.
Source: As cited in table 4.

Table 7. Enrolment at Different Levels of Education for Boys according to States and Union Territories

Sl. No	States / UTs	2002-03 bep	2007-08 bem	2004-05 bem	2007-08 bels	2005-06 bels	2007-08 behs
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Andhra Pradesh	4364178	1947310	1918363	1063713	1015500	813304
2.	Arunachal Pradesh	93529	39506	32698	17659	16387	10130
3.	Assam	1620771	943035	737094	312853	355837	81244
4.	Bihar	7041165	2777806	1975194	1061296	890160	374607
5.	Goa	58416	34988	38830	19207	18971	13391
6.	Gujarat	3433573	1509160	1431810	766946	716802	360858
7.	Haryana	1154838	632088	656396	341742	300372	256083
8.	Himachal Pradesh	376554	224073	219699	131428	190007	88731
9.	Jammu & Kashmir	597470	270245	253629	124314	124314	80100
10.	Karnataka	3244476	1554686	1549520	808755	692374	504787
11.	Kerala	1275926	835670	850689	514873	531080	245423
12.	Madhya Pradesh	5568704	3272705	3052415	1389291	1131890	808827
13.	Maharashtra	5712842	2872632	3277661	1586947	1587424	1076114
14.	Manipur	184559	77617	72315	40048	38717	13870
15.	Meghalaya	193920	88078	65594	28011	24873	5331
16.	Mizoram	69895	27148	26301	14084	12525	6655
17.	Nagaland	88165	46104	44547	16073	17628	11175
18.	Odisha	2377943	1034671	997910	473329	478837	213039
19.	Punjab	1000055	589484	555492	262655	285971	191847
20.	Rajasthan	4310352	2250440	2003374	1045666	891626	478617
21.	Sikkim	39337	14507	13529	5767	5622	3362
22.	Tamil Nadu	3352919	1932515	1934301	1057914	99820	597058
23.	Tripura	234945	105504	99196	47955	47934	26394
24.	Uttar Pradesh	12823542	5454681	4456016	3529926	2933725	2216422
25.	West Bengal	4977016	1918288	1945462	948809	909369	572137
26.	A & N Islands	20603	11769	12442	6882	6555	3886
27.	Chandigarh	35828	24804	20257	13925	13693	13004
28.	D &N Haveli	17649	8699	7192	3650	3387	2289
29.	Daman & Diu	8590	4580	4345	2374	2314	1439
30.	Delhi	752471	509189	422128	239817	209796	174342
31.	Lakshadweep	4033	2275	2298	1313	1485	1012
32.	Puducherry	50115	36184	35018	20905	20485	11944
India		65084379	31050441	28711715	15898127	14475480	9257422

Note: bep: Enrolment for boys at primary level; bem: Enrolment for boys at middle level; bels: Enrolment for boys at lower secondary level; behs: Enrolment for boys at higher secondary level.
Source: As cited in table 4.

Table 8. Enrolment at Different Levels of Education for Girls according to States and Union Territories

Sl. No.	States / UTs	1997-98 gep	2002-03 gem	1999- 2000 gem	2002-03 gels	2000-01 gels	2002-03 gehs
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Andhra Pradesh	3980334	1561195	1174991	645652	534009	403330
2.	Arunachal Pradesh	67313	26857	23338	10405	8972	5168
3.	Assam	1791822	506411	643030	237359	255397	41358
4.	Bihar	3821676	893221	808939	346458	328656	48344
5.	Goa	60642	35185	33680	18423	18550	9399
6.	Gujarat	2533228	1094973	907165	438338	416471	260035
7.	Haryana	986393	488240	398976	231193	208276	148972
8.	Himachal Pradesh	342556	208428	168331	105527	96832	63190
9.	Jammu & Kashmir	373809	217136	151966	91164	91600	47351
10.	Karnataka	3076892	1306652	1098520	584208	529283	179708
11.	Kerala	1330600	813094	859844	519265	531079	238886
12.	Madhya Pradesh	4296879	1708399	1341093	529441	418902	240179
13.	Maharashtra	5636119	2765087	2403777	1258423	1136405	428499
14.	Manipur	110185	60692	56361	30643	30710	9460
15.	Meghalaya	150741	54403	47330	22705	16526	3687
16.	Mizoram	62732	25139	22850	11056	12193	5108
17.	Nagaland	100114	28565	30572	10566	13260	1351
18.	Odisha	1632000	657479	556000	300095	267000	29311
19.	Punjab	1012465	477190	468970	239815	261344	129922
20.	Rajasthan	2712526	867004	936582	285385	241025	142530
21.	Sikkim	41793	14472	13021	5701	3992	3026
22.	Tamil Nadu	3295068	1688321	1603289	815201	705217	484897
23.	Tripura	200928	85548	71108	38386	32236	12404
24.	Uttar Pradesh	5068995	2946021	1539963	1448774	587820	744716
25.	West Bengal	4045048	1588514	1225891	605942	492235	254122
26.	A & N Islands	19047	10290	10526	5404	5496	3036
27.	Chandigarh	30755	19009	17969	11381	11264	10607
28.	D &N Haveli	10573	4192	2898	1564	1259	734
29.	Daman & Diu	7106	3896	3248	1558	1670	865
30.	Delhi	600529	390013	330423	163583	95823	110453
31.	Lakshadweep	3851	2155	2076	1235	1012	452
32.	Puducherry	49829	31959	30120	17190	15385	9321
	India	47452548	20579740	16982847	9032040	7369899	4070421

Note: gep: Enrolment for girls at primary level; gem: Enrolment for girls at middle level; gels: Enrolment for girls at lower secondary level; gehs: Enrolment for girls at higher secondary level.
Source: As cited in table 4.

Table 9. Enrolment at Different Levels of Education for Girls according to States and Union Territories

Sl. No.	States / UTs	2002-03 gep	2007-08 gem	2004-05 gem	2007-08 gels	2005-06 gels	2007-08 gehs
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Andhra Pradesh	4251430	1838892	1724667	974428	887949	617268
2.	Arunachal Pradesh	78263	33523	26972	15160	12218	7447
3.	Assam	1508215	889310	652661	267476	280896	57896
4.	Bihar	5292271	1869708	1158054	622410	455397	214046
5.	Goa	53510	29794	34616	18591	18572	13523
6.	Gujarat	2901825	1095569	1041725	523817	474937	264266
7.	Haryana	969346	531555	528418	283639	240685	190647
8.	Himachal Pradesh	344288	200583	199103	117855	160710	72577
9.	Jammu & Kashmir	493469	209091	203268	94894	94894	64125
10.	Karnataka	3041979	1441561	1396782	743692	623501	463202
11.	Kerala	1220174	778185	777341	503482	514775	292804
12.	Madhya Pradesh	4893227	2788662	2410848	887563	672876	486330
13.	Maharashtra	5187191	2525387	2910891	1353364	1391437	821159
14.	Manipur	172240	69978	64985	38717	37207	10934
15.	Meghalaya	197810	92388	71246	29544	26200	5840
16.	Mizoram	64255	25923	25213	14053	12541	6161
17.	Nagaland	79807	44122	41073	15927	17428	9459
18.	Odisha	2131750	923996	843023	404209	388405	161603
19.	Punjab	889958	490718	486602	233278	248110	151603
20.	Rajasthan	3536149	1503605	1153437	557817	422260	230969
21.	Sikkim	39721	16859	15154	5867	5882	3583
22.	Tamil Nadu	3115338	1777446	1763557	1005098	925141	658453
23.	Tripura	214520	100361	88394	44833	42221	20599
24.	Uttar Pradesh	11044482	4465821	3194258	2535708	1612051	1572121
25.	West Bengal	4797527	1888973	1676564	774732	689839	419405
26.	A & N Islands	19022	10679	10987	6293	5928	3841
27.	Chandigarh	29655	20034	17459	11169	11810	11522
28.	D &N Haveli	14827	6134	4665	2455	2059	1308
29.	Daman & Diu	7668	3840	3815	2392	2022	1287
30.	Delhi	673037	446244	400364	209583	199659	151093
31.	Lakshadweep	3320	2083	1812	1178	1220	1034
32.	Puducherry	47062	33239	32078	20346	19755	13543
India		57313336	26154263	22960032	12319570	10498585	6999648

Note: gep: Enrolment for girls at primary level; gem: Enrolment for girls at middle level; gels: Enrolment for girls at lower secondary level; gehs: Enrolment for girls at higher secondary level.
Source: As cited in table 4

Table 10. Transition Rates of Enrolment at Various Levels of Education for Boys According to States and Union Territories in 2002-03 and 2007-08

Sl. No.	States / UTs	trbm		trbls		trbhs	
		2002-03	2007-08	2002-03	2007-08	2002-03	2007-08
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Andhra Pradesh	0.411	0.446	0.543	0.554	0.878	0.801
2	Arunachal Pradesh	0.383	0.422	0.507	0.540	0.613	0.618
3	Assam	0.273	0.582	0.310	0.424	0.188	0.228
4	Bihar	0.242	0.395	0.413	0.537	0.108	0.421
5	Goa	0.605	0.599	0.522	0.495	0.458	0.706
6	Gujarat	0.446	0.440	0.526	0.536	0.598	0.503
7	Haryana	0.551	0.547	0.636	0.521	0.783	0.853
8	Himachal Pradesh	0.657	0.595	0.612	0.598	0.694	0.467
9	Jammu & Kashmir	0.550	0.452	0.489	0.490	0.562	0.644
10	Karnataka	0.447	0.479	0.516	0.522	0.395	0.729
11	Kerala	0.629	0.655	0.561	0.605	0.380	0.462
12	Madhya Pradesh	0.427	0.588	0.426	0.455	0.525	0.715
13	Maharashtra	0.511	0.503	0.505	0.484	0.377	0.678
14	Manipur	0.507	0.421	0.513	0.554	0.347	0.358
15	Meghalaya	0.330	0.454	0.483	0.427	0.221	0.214
16	Mizoram	0.367	0.388	0.458	0.535	0.443	0.531
17	Nagaland	0.296	0.523	0.341	0.361	0.109	0.634
18	Odisha	0.353	0.435	0.434	0.474	0.115	0.445
19	Punjab	0.478	0.589	0.498	0.473	0.537	0.671
20	Rajasthan	0.397	0.522	0.301	0.522	0.510	0.537
21	Sikkim	0.315	0.369	0.455	0.426	0.728	0.598
22	Tamil Nadu	0.520	0.576	0.497	0.547	0.590	0.597
23	Tripura	0.396	0.449	0.531	0.483	0.444	0.551
24	Uttar Pradesh	0.478	0.425	0.789	0.792	0.594	0.755
25	West Bengal	0.372	0.385	0.457	0.488	0.556	0.629
26	A & N Islands	0.552	0.571	0.491	0.553	0.530	0.593
27	Chandigarh	0.622	0.692	0.628	0.687	0.782	0.950
28	D &N Haveli	0.477	0.493	0.482	0.508	0.616	0.676
29	Daman & Diu	0.576	0.533	0.526	0.546	0.577	0.622
30	Delhi	0.673	0.677	0.641	0.568	0.655	0.831
31	Lakshadweep	0.601	0.564	0.557	0.571	0.444	0.681
32	Puducherry	0.644	0.722	0.542	0.597	0.536	0.583
India		0.428	0.477	0.509	0.554	0.488	0.640

Note: trbm: Transition rates of enrolment at middle level education for boys; trls: Transition rates of enrolment at lower secondary level education for boys; trhs: Transition rates of enrolment at high secondary level education for boys
Source: Computed from the source as cited in tables 6 and 7.

Table 11. Classification of States and Union Territories according to the Order of Transition Rates of Enrolment at Various Levels of Education for Boys in 2002-03 and 2007-08

Group		Order of the transition rates of enrolment	States/UTs (2002-03)	GML (2002-03)	States/UTs (2007-08)	GML (2007-08)
(1)		(2)	(3)	(4)	(5)	(6)
1	I	trbm<trbls<trbhs	Andhra Pradesh, Arunachal Pradesh, Gujarat, Haryana, Punjab, Sikkim, West Bengal, Chandigarh, D & N Haveli, Puducherry	74.17	Andhra Pradesh, Arunachal Pradesh, Jammu & Kashmir, Karnataka, Sikkim, Tripura, West Bengal, D & N Haveli, Daman & Diu, Lakshadweep	71.75
2	II	trbm<trbhs<trbls	Mizoram, Tripura, Uttar Pradesh		Bihar, Gujarat, Mizoram, Odisha, Uttar Pradesh	
	III	trbls<trbm<trbhs	Himachal Pradesh, Jammu & Kashmir, Madhya Pradesh, Rajasthan, Tamil Nadu, Daman & Diu,	76.73	Goa, Haryana, Madhya Pradesh, Maharashtra, Nagaland, Punjab, Rajasthan, Tamil Nadu, A & N Islands, Chandigarh, Delhi	81.05
	IV	trbls>trbm>trbhs	Assam, Bihar, Karnataka, Manipur, Meghalaya, Nagaland, Odisha		Himachal Pradesh, Manipur	
	V	trbm>trbhs>trbls	A & N Islands, Delhi	....		
	VI	trbm>trbls>trbhs	Goa, Kerala, Maharashtra, Lakshadweep		Assam, Kerala, Meghalaya, Puducherry	

Note: 1. GML stands for Group Mean Literacy
2. Other Notations are as defined elsewhere.
Source: Same as in table 10.

Table 12. Transition Rates of Enrolment at Various Levels of Education for Girls According to States and Union Territories in 2002-03 and 2007-08

Sl. No.	States / UTs	trgm		trgls		trghs	
		2002-03	2007-08	2002-03	2007-08	2002-03	2007-08
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Andhra Pradesh	0.392	0.433	0.549	0.565	0.755	0.695
2	Arunachal Pradesh	0.399	0.428	0.446	0.562	0.576	0.610
3	Assam	0.283	0.59	0.369	0.410	0.162	0.206
4	Bihar	0.234	0.353	0.428	0.537	0.147	0.470
5	Goa	0.580	0.557	0.547	0.537	0.507	0.728
6	Gujarat	0.432	0.378	0.483	0.503	0.624	0.556
7	Haryana	0.495	0.548	0.579	0.537	0.715	0.792
8	Himachal Pradesh	0.608	0.583	0.627	0.592	0.653	0.452
9	Jammu & Kashmir	0.581	0.424	0.600	0.467	0.517	0.676
10	Karnataka	0.425	0.474	0.532	0.532	0.34	0.743
11	Kerala	0.611	0.638	0.604	0.648	0.45	0.569
12	Madhya Pradesh	0.398	0.570	0.395	0.368	0.573	0.723
13	Maharashtra	0.491	0.487	0.524	0.465	0.377	0.590
14	Manipur	0.551	0.406	0.544	0.596	0.308	0.294
15	Meghalaya	0.361	0.467	0.480	0.415	0.223	0.223
16	Mizoram	0.401	0.403	0.484	0.557	0.419	0.491
17	Nagaland	0.285	0.553	0.346	0.388	0.102	0.543
18	Odisha	0.403	0.433	0.540	0.479	0.11	0.416
19	Punjab	0.471	0.551	0.511	0.479	0.497	0.611
20	Rajasthan	0.320	0.425	0.305	0.484	0.591	0.547
21	Sikkim	0.346	0.424	0.438	0.387	0.758	0.609
22	Tamil Nadu	0.512	0.571	0.508	0.570	0.688	0.712
23	Tripura	0.426	0.468	0.540	0.507	0.385	0.488
24	Uttar Pradesh	0.581	0.404	0.941	0.794	0.784	0.975
25	West Bengal	0.393	0.394	0.494	0.462	0.516	0.608
26	A & N Islands	0.540	0.561	0.513	0.573	0.552	0.648
27	Chandigarh	0.618	0.676	0.633	0.640	0.942	0.976
28	D &N Haveli	0.396	0.414	0.540	0.526	0.583	0.635
29	Daman & Diu	0.548	0.501	0.480	0.627	0.518	0.636
30	Delhi	0.649	0.663	0.495	0.523	0.742	0.757
31	Lakshadweep	0.560	0.627	0.595	0.650	0.447	0.848
32	Puducherry	0.641	0.706	0.571	0.634	0.606	0.686
India		0.434	0.456	0.532	0.537	0.51	0.667

Note: trgm: Transition rates of enrolment at middle level education for girls; trgls: Transition rates of enrolment at lower secondary level education for girls; trghs: Transition rates of enrolment at high secondary level education for gir
Source: Computed from the source as cited in tables 8 and 9.

Table 13. Classification of States and Union Territories According to the Order of Transition Rates of Enrolment at Various Levels of Education for Girls

Group		Order of the transition rates of enrolment	States/UTs (2002-03)	GML (2002-03)	States/UTs (2007-08)	GML (2007-08)
(1)		(2)	(3)	(4)	(5)	(6)
1	I	trgm<trgls<trghs	Andhra Pradesh, Arunachal Pradesh, Gujarat, Haryana, Himachal Pradesh, Sikkim, West Bengal, Chandigarh, D & N Haveli	52.06	Andhra Pradesh, Arunachal Pradesh, Gujarat, Jammu & Kashmir, Karnataka, Rajasthan, Uttar Pradesh, West Bengal, A & N Islands, D & N Haveli, Daman & Diu, Lakshadweep	47.90
	II	trgm<trghs<trgls	Mizoram, Punjab, Uttar Pradesh		Bihar, Mizoram, Tripura	
2	III	trgls<trgm<trghs	Madhya Pradesh, Rajasthan, Tamil Nadu, A & N Islands, Delhi		Goa, Haryana, Madhya Pradesh, Maharashtra, Punjab, Sikkim, Tamil Nadu, Chandigarh, Delhi	
	IV	trgls>trgm>trghs	Assam, Bihar, Jammu & Kashmir, Karnataka, Maharashtra, Meghalaya, Nagaland, Odisha, Tripura, Lakshadweep	55.19	Himachal Pradesh, Kerala, Manipur, Odisha	62.75
	V	trgm>trghs>trgls	Daman & Diu, Puducherry.		Nagaland, Puducherry	
	VI	trgm>trgls>trghs	Goa, Kerala, Manipur		Assam, Meghalaya	

Note: 1. Notations are as defined elsewhere.
Source: Same as in table 12.

Table 14. Transition Rates of Enrolment at Various Levels of Education for All According to States and Union Territories in 2002-03 and 2007-08

Sl. No.	States / UTs	trm		trls		trhs	
		2002-03	2007-08	2002-03	2007-08	2002-03	2007-08
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Andhra Pradesh	0.402	0.439	0.546	0.559	0.826	0.752
2.	Arunachal Pradesh	0.390	0.425	0.479	0.550	0.598	0.614
3.	Assam	0.277	0.586	0.335	0.418	0.177	0.219
4.	Bihar	0.239	0.377	0.418	0.537	0.118	0.437
5.	Goa	0.593	0.579	0.534	0.515	0.481	0.717
6.	Gujarat	0.440	0.411	0.508	0.522	0.609	0.525
7.	Haryana	0.525	0.548	0.611	0.528	0.755	0.826
8.	Himachal Pradesh	0.633	0.589	0.619	0.595	0.675	0.460
9.	Jammu & Kashmir	0.563	0.439	0.531	0.480	0.543	0.658
10.	Karnataka	0.436	0.477	0.523	0.527	0.370	0.736
11.	Kerala	0.620	0.647	0.582	0.626	0.416	0.515
12.	Madhya Pradesh	0.415	0.579	0.415	0.417	0.541	0.718
13.	Maharashtra	0.501	0.495	0.513	0.475	0.377	0.637
14.	Manipur	0.527	0.414	0.528	0.574	0.328	0.327
15.	Meghalaya	0.345	0.461	0.481	0.421	0.222	0.219
16.	Mizoram	0.383	0.396	0.471	0.546	0.431	0.511
17.	Nagaland	0.291	0.537	0.343	0.374	0.106	0.589
18.	Odisha	0.373	0.434	0.475	0.477	0.113	0.432
19.	Punjab	0.475	0.572	0.504	0.476	0.518	0.643
20.	Rajasthan	0.366	0.478	0.302	0.508	0.532	0.540
21.	Sikkim	0.330	0.397	0.446	0.406	0.742	0.604
22.	Tamil Nadu	0.516	0.574	0.503	0.558	0.635	0.652
23.	Tripura	0.409	0.458	0.535	0.495	0.417	0.521
24.	Uttar Pradesh	0.516	0.416	0.837	0.793	0.641	0.833
25.	West Bengal	0.382	0.390	0.473	0.476	0.540	0.620
26.	A & N Islands	0.546	0.567	0.502	0.562	0.541	0.619
27.	Chandigarh	0.620	0.685	0.631	0.665	0.857	0.962
28.	D &N Haveli	0.443	0.457	0.504	0.515	0.602	0.660
29.	Daman & Diu	0.563	0.518	0.504	0.584	0.551	0.629
30.	Delhi	0.662	0.670	0.564	0.546	0.694	0.795
31.	Lakshadweep	0.582	0.593	0.575	0.606	0.445	0.756
32.	Puducherry	0.643	0.714	0.556	0.615	0.569	0.633
India		0.431	0.467	0.518	0.546	0.497	0.651

Note: trm: Transition rates of enrolment at middle level education for all; trls: Transition rates of enrolment at lower secondary level education for all; trhs: Transition rates of enrolment at higher secondary level education for all
Source: Computed from the source as cited in tables 5 and 6.

Table 15. Classification of States and Union Territories According to the Order of Transition Rates of Enrolment at Various Levels of Education for All in 2002-03 and 2007-08

Group		Order of the transition rates of enrolment	States/UTs (2002-03)	GML (2002-03)	States/UTs (2007-08)	GML (2007-08)
(1)		(2)	(3)	(4)	(5)	(6)
1	I	trm<trls<trhs	Andhra Pradesh, Arunachal Pradesh, Gujarat, Haryana, Madhya Pradesh, Punjab, Sikkim, West Bengal, Chandigarh, D & N Haveli	63.45	Andhra Pradesh, Arunachal Pradesh, Gujarat, Jammu & Kashmir, Karnataka, Rajasthan, Sikkim, Tripura, Uttar Pradesh, West Bengal, D & N Haveli, Daman & Diu, Lakshadweep	60.31
	II	trm<trhs<trls	Mizoram, Tripura, Uttar Pradesh		Bihar, Mizoram	
2	III	trls<trm<trhs	Himachal Pradesh, Rajasthan, Tamil Nadu, Delhi		Goa, Haryana, Madhya Pradesh, Maharashtra, Nagaland, Punjab, Tamil Nadu, A & N Islands, Chandigarh, Delhi	
	IV	trls>trm>trhs	Assam, Bihar, Karnataka, Maharashtra, Manipur, Meghalaya, Nagaland, Odisha	66.66	Himachal Pradesh, Manipur, Odisha	72.17
	V	trm>trhs>trls	Jammu & Kashmir, A & N Islands, Daman & Diu, Puducherry		Puducherry	
	VI	trm>trls>trhs	Goa, Kerala, Lakshadweep		Assam, Kerala, Meghalaya	

Note: 1. Notations are as defined elsewhere.

Source: Same as in table 14.

2. Lower secondary and higher secondary levels are organized (and defined) identically for all states and UTs.

Table 16. Gender-related Development Index (GDI) in India according to States and Union Territories in 2006

States and union territories	GDI	States and union territories	GDI
(1)	(2)	(3)	(4)
Andhra Pradesh	0.574	Nagaland	0.697
Arunachal Pradesh	0.642	Odisha	0.524
Assam	0.585	Punjab	0.663
Bihar	0.479	Rajasthan	0.526
Goa	0.747	Sikkim	0.659
Gujarat	0.624	Tamil Nadu	0.655
Haryana	0.632	Tripura	0.626
Himachal Pradesh	0.664	Uttar Pradesh	0.509
Jammu & Kashmir	0.568	West Bengal	0.622
Karnataka	0.611	Andaman & Nicobar Islands	0.692
Kerala	0.745	Chandigarh	0.763
Madhya Pradesh	0.516	Dadra & Nagar Haveli	0.673
Maharashtra	0.677	Daman & Diu	0.677
Manipur	0.699	NCT Delhi	0.701
Meghalaya	0.624	Lakshadweep	0.635
Mizoram	0.687	Puducherry	0.706

Source: wcd.nic.in/publication/GDIGEReport/Part2.pdf

Table 17. State and Union Territory-wise Budgeted Expenditure on Education in 2006-07 (Revenue Account)

State/UT	Per Capita Expenditure (RE) (In Rs.)	State/UT	Per Capita Expenditure (RE) (In Rs.)
(1)	(2)	(3)	(4)
Andhra Pradesh	1009.75	Nagaland	1595.75
Arunachal Pradesh	1980.88	Odisha	728.1
Assam	1278.97	Punjab	1054.49
Bihar	592.42	Rajasthan	814.62
Goa	2888.93	Sikkim	3702.13
Gujarat	940.29	Tamil Nadu	1217.52
Haryana	1113.59	Tripura	1521.63
Himachal Pradesh	2118.13	Uttar Pradesh	642
Jammu & Kashmir	1254.76	West Bengal	774.14
Karnataka	1161.74	A&N Islands	3257.36
Kerala	1680.82	Chandigarh	2241.96
Madhya Pradesh	653.42	D&N Haveli	920.13
Maharashtra	1413.21	Daman & Diu	1061.11
Manipur	1622.11	Delhi	1198.81
Meghalaya	1451.36	Lakshadweep	2696.79
Mizoram	3087.22	Pondicherry	2946.1
		India	1241

Source: http://www.education.nic.in

Table 18. Per Capita Net State Domestic Product at Factor Cost of States and Union Territories at Constant Prices (Base- 1999-2000) in 2002-03 and 2007-08

States/UTs	Per Capita NSDP (Rs.) in 2002-03	Per Capita NSDP (Rs.) in 2007-08	% of popula-tion below poverty line	States/UTs	Per Capita NSDP (Rs.) in 2002-03	Per Capita NSDP (Rs.) in 2007-08	% of popula-tion below poverty line
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Andhra Pradesh	17486	25044	8.49	Meghalaya	15882	20094	8.23
Arunachal Pradesh	15832	20570	3.68	Mizoram	18429	19750	20.76
Assam	13072	15857	33.33	Odisha	10575	16149	41.04
Bihar	6658	8703	43.18	Punjab	25955	31439	2
Goa	40602	60232	2	Rajasthan	12054	17334	12.11
Gujarat	19509	NA	2	Sikkim	17065	23761	33.78
Haryana	26726	39796	2	Tamil Nadu	19662	29445	6.61
Himachal Pradesh	23234	30586	2	Tripura	17752	NA	31.88
Jammu & Kashmir	14341	17590	NA	Uttar Pradesh	9806	11939	24.67
Karnataka	18115	25226	7.85	West Bengal	17567	23229	18.3
Kerala	21942	32961	3.61	Andaman & Nicobar Islands	25487	NA	5.82
Madhya Pradesh	10880	13299	29.52	Chandigarh	55991	75480	2
Maharashtra	23447	33302	16.18	Delhi	40929	60189	2
Manipur	12319	15270	30.52	Pondicherry	39159	40931	7.72
Nagaland	NA	NA	31.86	Dadra & Nagar Haveli	NA	NA	2

Source: As cited in table 4.

Table 19. State-wise Estimated Number and Percentage of Population below Poverty Line (BPL) in India (2006-2007)

Sr. No.	State/Union Territory	Rural		Urban		Combined	
		No. of Persons (Lakh)	%	No. of Persons (Lakh)	%	No. of Persons (Lakh)	%
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Andhra Pradesh	26.97	4.58	41.75	18.99	68.72	8.49
2.	Arunachal Pradesh	3.57	37.89	0.14	4.48	29.33	3.68
3.	Assam	95.36	37.89	1.78	4.48	97.14	33.33
4.	Bihar	482.16	44.81	54.74	32.69	536.91	43.18
5.	Delhi	0.19	2	3.18	2	3.38	2
6.	Goa	0.13	2	1.51	2	4.81	2
7.	Gujarat	6.88	2	4.38	2	11.25	2
8.	Haryana	3.30	2	1.51	2	4.81	2
9.	Himachal Pradesh	1.18	2	0.14	2	1.32	2
10.	Jammu & Kashmir	NA	NA	NA	NA	NA	NA
11.	Karnataka	28.66	7.77	16.34	8	45	7.85
12.	Kerala	4.03	1.63	8.01	9.34	12.04	3.61
13.	Madhya Pradesh	192.07	28.73	74.46	31.77	266.54	29.52
14.	Maharashtra	101.60	16.96	72.68	15.2	174.3	16.18
15.	Manipur	8.10	37.89	0.27	4.48	8.37	30.52
16.	Meghalaya	7.99	37.89	0.24	4.48	30.14	8.23
17.	Mizoram	1.88	37.89	0.23	4.48	2.12	20.76
18.	Nagaland	8.01	37.89	0.21	4.48	8.22	31.86
19.	Odisha	139.12	41.72	23.57	37.46	162.69	41.04
20.	Punjab	3.40	2	1.95	2	5.35	2
21.	Rajasthan	54.41	11.09	23.44	15.42	77.86	12.11
22.	Sikkim	2.08	37.89	0.03	4.48	2.12	33.78
23.	Tamil Nadu	12.46	3.68	31.61	9.64	44.07	6.61
24.	Tripura	10.70	37.89	0.28	4.48	10.98	31.88
25.	Uttar Pradesh	373.16	24.25	111.25	26.17	484.41	24.67
26.	West Bengal	137.53	21.98	22.21	8.98	159.73	18.3
27.	Andaman & Nicobar Islands	0.10	3.68	0.14	9.64	0.24	5.82
28.	Chandigarh	0.02	2	0.19	2	0.21	2
29.	Dadra & Nagar Haveli	0.04	2	0.02	2	0.06	2
30.	Daman & Diu	0.03	2	0.01	2	0.04	2
31.	Lakshadweep	0.01	1.63	0.02	9.34	0.03	4.59
32.	Pondicherry	0.13	3.68	0.7	9.64	0.83	7.72
	India	1705.26	21.07	495.67	15.06	2200.94	19.34

Abbr: NA: Not Available.
Note: * Estimates correspond to 30 day recall period.
Compiled from the statistics released by Institute of Applied Manpower Research

Table 20. Changes in the magnitude of child labour between 1991 and 2001 (Children in the age group of 5-14) and Age at Marriage for girls in select Indian states

States	Percentage Share of Child labour in the State*		Mean Age at marriage for girls (DLHS III)**	% of girls marrying below the age of 18 (DLHS III)**
	1991	2001	2007-08	2007-08
(1)	(2)	(3)	(4)	(5)
Andhra Pradesh	14.7	10.8	19.0	28.6
Assam	2.9	2.8	20.8	20.8
Bihar	8.3	8.8	17.6	45.9
Gujarat	4.6	3.8	19.6	18.7
Haryana	1.0	2.0	19.7	15.9
Himachal Pradesh	0.5	0.9	21.9	1.6
Karnataka	8.7	6.5	19.8	22.4
Kerala	0.3	0.2	22.1	6.8
Madhya Pradesh	12.0	8.4	18.5	29.0
Maharashtra	9.5	6.0	19.3	17.6
Odisha	4.0	3.0	20.5	19.1
Punjab	1.3	1.4	21.3	5.8
Rajasthan	6.9	10.0	17.7	39.9
Tamil Nadu	5.1	3.3	21.3	9.1
Uttar Pradesh	12.5	15.2	17.7	49.8
West Bengal	6.3	6.8	18.5	41.3
Delhi	0.2	0.3	21.6	6.0
Goa	0.0	0.0	25.1	3.0
Arunachal Pradesh	0.1	0.1	21.7	8.2
Sikkim	0.0	0.1	21.5	16.0
Tripura	0.1	0.2	20.2	21.1

Source: *compiled from census of India 1991 and 2001

** DLHS III (2007-08): Facts Sheet as cited in Family Welfare Statistics in India, 2011.

Table 21. People-Teacher Ratio, Percentage of Trained Teachers, Percentage of Female Teachers and Percentage of Single Teacher Schools in Major States of India

State	Pupil-Teacher Ratio (2007-08)				% of Trained Teacher (2007-08)				% of Female Teachers (2007-08)				% of single teacher schools 2002-03)*
	Pr	Mid	Sec	HS	Pr	Mid	Sec	HS	Pr	Mid	Sec	HS	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Andhra Pradesh	32	28	33	33	94	90	96	97	47.5	43.46	40.4	26.89	18.6
Assam	38	18	20	28	64	90	29	29	35.09	26.1	26.09	31.77	18
Bihar	68	54	52	41	85	90	98	95	36.08	35.05	14.9	15.58	23.7
Gujarat	30	37	31	38	100	100	100	100	39.27	53.85	23.5	30.41	29
Haryana	53	37	26	28	95	93	94	97	49.29	46.67	45.17	47.62	7
Karnataka	23	32	27	50	100	100	100	100	64	54.12	43.92	42.17	18.9
Kerala	28	25	24	27	98	97	99	100	74.92	69.7	72.08	73.87	0.5
Madhya Pradesh	41	33	34	24	90	91	75	87	31.03	21.71	38.82	38.12	14.4
Maharashtra	34	32	32	38	98	96	98	99	60.25	44.09	31.46	31.8	22.2
Odisha	42	35	22	17	88	91	92	100	38.6	28.91	23.55	28.63	22.1
Punjab	53	21	31	32	99	100	99	100	63.04	52.58	56.48	57.1	15.9
Rajasthan	43	32	22	28	85	80	83	92	30.67	30.43	24.95	29.04	12.7
Tamil Nadu	44	54	40	33	100	100	100	100	73.97	60.21	59.39	49.26	0
Uttar Pradesh	76	79	67	65	98	95	97	97	42.61	28.16	18.9	17.48	10.5
West Bengal	51	70	60	51	83	80	80	86	28.59	27.48	27.93	32.16	7.7

Source: http//:www.indiastat.com

*Estimated from NCERT (2005) as cited in Govinda and Bandyopadhyaya (2008)

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STRUCTURE AND PERFORMANCE OF FOOD PROCESSING INDUSTRY IN INDIA

Pramod Kumar

Urbanisation, increase in income, changing lifestyle, and foreign influence has induced demand for processed foods and has implications for the growth and performance of food processing industries in India. The paper assesses the growth and perspectives of 15 sub groups of the food processing industry using the data published by the Annual Survey of Industries (GoI, various issues) on organised industries for the period of 1989 to 2008. Based on the growth performance two groups of food processing industry were identified i.e., traditional and emerging sectors.

Introduction

India is one of the largest agricultural countries in the world, with more than 143 million hectares of cultivated land. It ranks first in the production of pulses and tea and is second in wheat, rice, fruits, vegetables and sugar and is also the largest producer of milk. Even with such an abundance of agricultural and animal production the food processing industry is underdeveloped. Urbanisation, increase in income, changing lifestyle, and foreign influence has induced demand for processed foods in recent years. The changing consumer demand has implications for the growth and performance of food processing industries in particular and industry in general. The Indian industries in the 'nineties have recorded a growth rate of 14 per cent [Balakrishnan and Babu, 2003, Pp. 3997-4005]. This was driven by hefty rise in investment that was fuelled by industrial deregulation, aided by stock market boom in the first half of the 'nineties that reduced the cost of capital [Nagaraj, 2000, Pp. 3445-48]. The liberalisation process has also aided the process of agro-industrial development [Chengappa, 2004, Pp. 55-73]. A number of researchers have analysed the potential of and the constraints affecting the agro-processing industries [Srivastava, 1989, Pp. 242-56; Shah, 1989]. The agro-processing industry is reported to have suffered a huge productivity setback during 1994-95 to 2000-01 compared to 1984-85 to 1994-95 [Chadha and Sahu, 2001, Pp. 518-41]. However, there are few studies analysing the structure and performance of the food processing industry in detail. A number of policy initiatives have been taken up in the past to boost food processing industry. The mega food parks scheme; scheme of up-gradation of quality street food; scheme for research and development; operational guidelines for cold chain, value addition and preservation of infrastructure; scheme for implementation of Hazard Analysis and Critical Control Point (HACCP)/ISO 22000, ISO 14000/ Good Hygienic Practices (GHP) / Good Manufacturing Practices (GMP)/ Safety Management System; scheme for technology up-gradation/ setting up/ modernization/ expansion of food processing industries. These are expected to have significant effect on the growth and performance of various sectors of food processing industry. Looking at the importance of the food processing industry in meeting the changing demand of consumers it is essential to empirically analyse its structure and performance. This paper, therefore, seeks to assess the growth and perspectives of the Indian food processing sector with the specific objective: to compare the growth of the food processing industry *vis-à-vis* All industry; to identify among the 15 sub groups of the food processing industry the best performing; and to measure the impact of growth on employment and creation of net value added (NVA).

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Methodology

The Indian food processing industry consists of two different sectors, namely, the organised and the unorganised sectors. The organised sector comprises "Directory manufacturing establishments" that employ ten or more workers and use power and those that employ 20 or more workers without using power. The organised sector of food processing industry comprises a total number of 25,868 factories. It produces 67 per cent of total GDP from food processing industry and employs only 18 per cent of total workers of food processing industry [GoI, 2011a]. The present study deals with the organised sector of the food processing industry which is in a better position to serve the new upcoming market. The time series data on various parameters[1] of the food processing industry was compiled for the period 1989 to 2008 from various publications of Annual Survey of Industries (ASI) [GoI, various issues]. The ASI gives the data of industrial sector by NIC classification of Industries. The study period encounters four different NIC classifications, one formulated in 1987, 1998, 2004 and the other in 2008. The various food processing industries with corresponding codes under the two classifications is presented in Appendix I. To understand the structure of the food processing industry, 15 sub sectors of industries were selected for the study. The industries which were producing processed food at four digit level were chosen for the study. The industrial parameters with monetary values were deflated using the wholesale price index of (manufactured products) taking 1993-94 as base and analysed. For simplicity the same index was used to deflate all the parameters with monetary values, *i.e.*, plant and machinery, raw materials, wages, etc. When arriving at various monetary values for any triennium, such as TE 2008, at first the constant price [1993] magnitudes by deflating the individual years' values were arrived at and then the average constant price values for the three years of the triennium were arrived at.

In order to understand the structure and performance of food processing industry various structural and financial ratios are computed and compared, which are:

* Working capital= Invested capital-Fixed capital
* Invested capital= Total fixed capital (refers to the depreciated values of fixed assets used by the factory as on the closing day of accounting year) +Physical working capital (refers to total inventories comprising of raw materials and components, fuels and lubricants, spares, stores, etc, supplied by others to the factory for processing and finished goods processed by the factory from raw materials supplied by others)
* Short term capital= Working capital/ Invested capital
* Gross Value Added= Total value of output-Total value of inputs
* Net value added = Gross value added-Depreciation
* Net income = Net value added-(Rent paid+ interest paid)
* Profits= Net income-Total emoluments
* Distribution of NVA= Labour (Emolument)+ Interest+ Rent+ Profit *
* Profit rate= Profit/(invested capital-loans) * Debt rate= loan/invested capital * Interest rate= interest/loan

Results

Demand Perspective of Processed Food

In spite of having comparative advantage in terms of raw material/agro production, and growing demand for processed food. The level of food processing is low at around 1.7 per cent in fruits and vegetables, 35 per cent in milk, 21 per cent in meat, 10.7 per cent in marine fish and 6 per cent in poultry (Table 1). The value addition is only to tune of 20 per cent. More importantly lack of processing and storage of fruits and vegetables results in huge wastages estimated at

about 35 per cent, the value of which is approximately Rs. 33,000 crore annually. The food-processing sector employs about 13 million persons directly and about 35 million persons indirectly. India's agricultural production base is quite strong but at the same time wastage of agricultural produce is massive. Processing is very low at around 2.20 per cent in fruits and vegetables, 35 per cent in milk, 21 per cent in meat, 10.7 per cent in Marine fisheries and 6 per cent in poultry. Value addition is only to the tune of 20 per cent (Table 1).

Table 1. Level of Food Processing in Organized and Unorganized Sector

(Per cent)

Item	Level of processing in		
	Organised sector	Unorganised sector	Total
(1)	(2)	(3)	(4)
Fruits and vegetables	1.20	0.50	1.70
Dairy products	13.0	22.0	35.0
Meat	21.0		21.0
Poultry	6.0		6.0
Marine fisheries	1.7	9.0	10.7
Shrimps	0.4	1.0	1.4

Source: GoI [2008], Report of the task force on development of cold chain in India, Department of Agriculture & Cooperation, 2008.

The share of different food items in total food expenditures by different income group of households is presented in Fig 1 [GoI, 2004-05]. The share of food commodities like cereals, oils, vegetables and pulses to the total food expenditure decreases as we progress from households with low level of household expenditure to those with higher level of household expenditure. On the other hand, the share of beverages and processed foods, dairy products, meat and eggs, and fruits increases with the level of household expenditure. The share of beverages and processed foods in particular is substantially high in the group of households with very high expenditure. This reveals the trend as to what would be the demand of the consumers in future as the average (income and) expenditure of the households increases.

Thus changing consumer demand for food commodities would have implications for the structure and performance of the food processing industry. The food industries producing dairy products, beverages, etc., would get incentive to invest and grow faster taking the advantage of increased demand for such commodities.

The agricultural commodities have become an increasingly important source of export earnings for the country post WTO era which came into being on 1st January 1995. Table 2 presents the export performance of the agricultural commodities, Agricultural and Processed Food Products Export Development Authority (APEDA) schedule products. It is observed that a number of agricultural commodities are being exported and the export performance has been very good recording a real value growth of 13 per cent per annum on aggregate basis. A wide variety of processed products are being exported from India namely, processed fruits and vegetables, animal products and other processed products these have recorded a good growth rate of 13 per cent, 16 per cent and 14 per cent, respectively.

The export of such commodities is being supported, aided and facilitated by APEDA. The increasing export demand of processed food products needs to be tapped by the processed food industry. The importing countries have been rejecting the export consignment for want of non compliance to their food safety standards (Appendix II). It is being used by the developed countries as a non-tariff barrier to prevent entry of goods into their countries.

Table 2. Export Performance of Major Agricultural Food Products (APEDA Scheduled Products) from India.

Products		Quantity (tons)			Value (Rs crore) (Constant prices, 1993-94 prices)		
		TE1991	TE2009	CAGR (%)	TE1991	TE2009	CAGR (%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
* Floriculture and seeds	Floriculture	0	31284.5		11.6	165.5	17.6
	Fruit and vegetables seeds	6039.0	9192.2	1.7	12.9	66.9	8.7
	Sub-total	***6039.0***	***40476.7***	***2.2***	***24.5***	***232.3***	***14.2***
* Fruits and vegetables	Onions	275076.5	1447905.1	9.5	130.8	835.0	10.1
	Dried nuts (walnuts)	4335.1	7162.1	2.0	30.3	81.9	4.4
	Fresh mangoes	19754.3	70838.2	7.9	38.5	81.0	4.4
	fresh grapes	8469.0	117581.7	13.7	15.0	206.0	14.2
	other fresh fruits	36598.4	241714.6	11.0	31.3	203.9	11.7
	Other fresh vegetables	39854.3	424920.4	14.4	27.3	309.3	15.0
	Sub-total	***384087.6***	***2310122.0***	***2.6***	***273.2***	***1717.2***	***10.2***
* Processed fruits and vegetables	Dried & preserved vegetables	11917.7	132733.7	13.7	30.5	238.3	11.4
	Mango pulp	20942.6	175321.2	12.7	38.5	326.8	12.2
	Pickles & Chutneys	8700.4	N.A.		20.7	N.A.	
	Other processed fruits and vegetables	11890.0	365620.3	20.8	25.7	613.4	18.5
	Pulses	0	135875.1		0	248.2	
	Sub-total	***53450.6***	***673675.2***	***2.4***	***115.4***	***1178.5***	***12.8***
* Animal Products	Buffalo meat	65337.8	480415.9	12.1	157.8	2254.1	15.5
	Sheep/goat meat	7216.4	33189.1	3.7	35.7	218.0	4.7
	Poultry products	25291.6	1143015.3	42.3	5.2	203.9	26.0
	Dairy products	1285.8	57980.7	26.8	6.7	375.6	26.9
	Animal casings	373.6	1488.0	7.0	9.1	7.4	-1.2
	Processed meat	176.8	939.8	15.5	1.1	5.4	12.1
	Natural honey	0.1	13709.8	81.3	0	63.2	
	Swine meat	0	1215.6		0	7.4	
	Sub-total	102268.6	1875021.2	2.5	225.8	3421.5	15.7
* Other processed foods	Groundnuts	18400.7	302574.8	16.0	22.9	606.3	18.0
	Guar gum	48794.9	229398.0	8.4	97.8	591.1	10.5
	Jaggery & confectionery	10156.9	1309891.5	28.2	12.0	862.7	26.3
	Cocoa products	546.4	5891.7	15.9	3.3	36.0	15.5
	Cereal preparations	12218.8	170562.3	13.0	33.2	454.4	14.6
	Alcoholic beverages	26878.9	62090.7	3.3	33.9	238.4	8.0
	Miscellaneous preparations	2586.6	143067.0	20.9	10.1	286.4	16.5
	Sub-total	***117773.5***	***2132416.3***	***2.5***	***203.5***	***2838.2***	***14.0***
* Cereals	Basmati rice	255791.0	1585513.9	9.8	446.0	3975.6	10.1
	Non-basmati rice	194096.0	2119112.3	15.0	143.4	1646.1	14.7
	Wheat	271169.3	468.4	-5.2	78.2	0.3	
	Other cereals	9862.3	3384056.0	34.1	5.2	1626.3	34.4
	Milled products	777.0	52007.4	35.3	0.4	49.4	36.0
	Sub-total	***730918.6***	***7089150.6***	***2.7***	***672.8***	***7248.2***	***13.0***
	Grand total	**1394538**	**14256737.1**	**14.3**	**1515.3**	**16884.1**	**13.3**

Source: APEDA (various issues), *Export Statistics for Agro & Food Products*, Ministry of Commerce and Industry, GOI.

The various non-tariff barriers used on Indian exports are presented in Appendix III. These NTBs need to be identified and resolved through bilateral negotiations at the highest level. The processed food industry needs to equip itself to meet the quality standards and also to comply with the food safety standards of the importing countries. This would require additional investment by the food processing industry to adopt the needed technology, train its manpower, and monitor supply chain (Appendix IV). Harmonization of domestic standards with international standards would be given due priority. Initiatives should be taken to get our standards and certification procedures and labs recognized by the importing countries. A sound information collection and processing system should be developed which would be depositary of knowledge with respect to the standards demanded by importing countries. The human resource development should be given due priority for implementation of international standards. Small farms in particular need to be given support for capital investment to facilitate adoption of HACCP practice. However, as much depends on the intentions of the importing countries, it is only our consistent effort to meet the food standards of the importing countries, which can help us in our efforts to boost the overall agricultural exports [Kumar and Badal, 2005].

Status of Food Processing Industry

During the study period of 1989-2008, the output of organised industrial sector as a whole increased by 8.2 per cent per annum while that of the organised food processing industry by 7.4 per cent per annum. The organised food processing industry accounts for 14.7 per cent of total output of organised industrial sector in TE 1991 which recorded a marginal decline (to 12.0 per cent) in the terminal year of TE 2008. It could be inferred that the growth of the food processing industry was not better than that of the whole industry (See Table 3A).

Table 3A. Performance of Organised Food Processing Industry

Particulars	All foods			All Industries		
	TE 1991	TE 2008	CAGR (%)	TE 1991	TE 2008	CAGR(%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
No. of factories (No)	19,450 (17.6)	25,866 (17.4)	1.49	1,10,145	1,48,805	1.43
No. of persons employed (No)	11,33,941 (13.2)	14,99,607 (14.01)	1.25	86,18,492	107,02,818	0.50
Value of assets (Rs crore)	19,095 (7.6)	71,420 (10.5)	7.93	251,138	678,465	5.06
Total output (Rs crore)	51,364 (14.7)	177,940 (12.0)	7.42	350,164	1,477,811	8.19
No of engaged per plant (No)	58.3	57.97	-0.24	78.2	71.9	-0.9
Value of assets per person (Rs)	1,68,354	4,74,488	6.59	2,91,698	6,32,767	4.53
Value of assets per plant (Rs)	98,13,688	275,08,124	6.34	227,85,591	455,15,540	3.58

Source: GoI (various issues), Annual Survey of Industries, Ministry of Statistics and Programme Implementation, Government of India, New Delhi.

The number of factories of All industries increased by 1.43 per cent per annum during the study period while that of food processing industries increased by 1.47 per cent per annum. The growth of production does not seem to be supported by increased employment. Thus, the total industrial employment recorded an increase from 8.62 million workers in TE 1991 to 10.70 million workers in TE 2008, while the food processing industry recorded a marginal increase in the number of employed from 1.13 million workers to 1.50 million workers during the corresponding period. It could, therefore, be stated that all industries as well as food processing industries did not help much in achieving the broader national objective of generating employment opportunities to a greater extent.

During the 20 years' period from TE 1991 to TE 2008, the value of assets (constant Rs, deflated using whole sale price index of manufactured products with 1993-94 as base) of total industry increased by 5.1 per cent per annum and that of food processing industry by 7.9 per cent per annum (Table 3A). Over the years, the Food processing industry has gained importance; as a result, its share in the total assets of the industry has increased from 7.6 per cent to 10.5 per cent during the period covered by the study. The value of assets per plant increased by 3.58 per cent per annum and by 6.34 per cent per annum for All Industry and Food processing industry, respectively. Thus, the food processing industry has been able to attract to some extent the much needed investment to meet the growing consumer demand towards newer and diversified products.

The value of assets per worker also improved substantially for the food processing industry which recorded a growth rate of 6.59 per cent during the period 1989-2008. However, the number of workers per plant declined from 76.5 to 61.0 and from 58.2 to 54.4 for All industries and for Food processing industries, respectively during the study period. This clearly reveals that the food processing industry as well as the aggregate of All industries is becoming less labour intensive. We now analyse the commodities or commodity groups that are responsible for the growth in the food processing industries.

Structure of Food Processing Industry

The various parameters revealing the structure of the food processing industries are presented in Table 2B. In terms of output in TE 2008, five sectors stand out compared to the others; Oils and fats with 27.4 per cent of the output of all food processing industries in TE 2008 (the value of output in TE 2008 being Rs 48789.5 crore) is the major sector of food processing industry in India. It is followed by Grain (20.8 per cent), Sugar (12.3 per cent), Dairy (10.6 per cent) and Tea, coffee and others (8.6 per cent). These five sectors account for 79.7 per cent of the total output of Food processing industry. These could be considered to constitute the "traditional sector" as they correspond to the basic diet of the Indian population.

Table 3B. Structure of food industries in India, TE2008

Type of Industry	Factories		Engaged persons		Output		Engaged persons/output		Values of total capital/value of output		Value of fixed capital/ value of output		Value of fixed capital/ engaged persons	
	No.	CAGR (%)	No.	CAGR (%)	(in crore Rs) (Constant, 1993-94)	CAGR (%)	No.	CAGR (%)	%	CAGR (%)	%	CAGR (%)	(Lakh Rs)	CAGR (%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Oils and fats	2493 (9.4)	-2.8	1,05,370 (7.0)	-1.35	48,790 (27.4)	7.60	2	-8.32	19.6	-1.49	7.9	-1.24	3.6	7.72
Grain	13023 (50.3)	2.01	3,14,333 (21.0)	1.79	36,975 (20.8)	8.27	9	-5.99	31.0	1.45	9.9	0.96	1.2	7.39
Sugar	768 (3.0)	-3.57	2,75,183 (18.4)	-1.64	21,965 (12.3)	3.94	13	-5.37	120.2	2.94	59.3	4.39	4.7	10.31
Dairy	1070 (4.1)	5.24	95,874 (6.4)	2.33	18,913 (10.6)	8.10	5	-5.34	16.7	-1.49	11.1	-0.93	2.2	4.66
Tea, Coffee, Others	4231 (16.4)	1.86	3,93,437 (26.2)	2.07	15,345 (8.6)	5.14	26	-2.97	34.7	1.01	20.6	1.07	0.8	1.05
Animal feeds	548 (2.1)	4.71	30,506 (2.0)	5.99	5,184 (2.9)	11.47	6	-4.91	20.5	-0.34	9.9	0.60	1.7	5.79
Fish	337 (1.3)	2.99	34,709 (2.3)	4.97	3,583 (2.0)	7.97	10	-2.78	31.8	3.26	15.2	3.46	1.6	6.42
Bakery	956 (3.7)	1.83	54,280 (3.6)	2.70	4,959 (2.8)	8.67	11	-5.49	24.3	0.05	17.4	0.94	1.6	6.81

(Contd.)

Table 3B. ***(Concld.)***

Type of Industry	Factories		Engaged persons		Output		Engaged persons/output		Values of total capital/value of output		Value of fixed capital/ value of output		Value of fixed capital/ engaged persons	
	No.	CAGR (%)	No.	CAGR (%)	(in crore Rs) (Constant, 1993-94)	CAGR (%)	No.	CAGR (%)	%	CAGR (%)	%	CAGR (%)	(Lakh Rs)	CAGR (%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Soft drink and syrups	843	3.09	44,195	6.05	5,449	15.35	8	-8.06	73.5	1.16	43.2	-1.09	5.3	7.58
	(3.3)		(2.9)		(3.1)									
Sprits and alcohol	263	1.03	37,098	1.25	5,227	8.45	7	-6.64	45.1	0.09	34.2	1.88	4.8	9.12
	(1.0)		(2.5)		(2.9)									
Malt and liquors	112	3.26	25,312	5.43	3,222	9.06	8	-3.33	52.2	0.39	38.4	0.96	4.9	4.44
	(0.4)		(1.7)		(1.8)									
Confectionary	409	6.09	22,137	5.42	2,056	12.68	11	-6.44	37.5	-0.99	28.8	0.15	2.7	7.05
	(1.6)		(1.5)		(1.2)									
Fruits and vegetables	701	7.31	45,293	6.88	2,459	14.00	19	-6.25	76.2	0.37	53.6	1.55	2.9	8.32
	(2.7)		(3.0)		(1.4)									
Meat	88	6.82	14,365	9.65	2,639	17.52	6	-6.69	30.6	-1.18	21.8	-0.70	3.8	6.43
	(0.3)		(1.0)		(1.5)									
Wine	73	4.57	7,515	5.10	1,175	13.30	6	-7.24	51.8	-1.22	28.3	-0.02	4.4	7.78
	(0.3)		(0.5)		(0.7)									
All foods	25866	1.47	14,99,607	1.25	1,77,940	7.42	9	-5.75	40.1	0.47	20.0	1.43	2.4	7.61
	(100.0)		(100.0)		(100.0)									
All Industries	148805	1.43	107,02,818	0.50	14,77,810	8.20	7	-7.11	45.8	-2.90	30.8	-3.03	4.3	4.39

Note: Value of total capital refers to invested capital which is sum of total fixed capital and physical working capital Source: GoI (various issues), Annual Survey of Industries, Ministry of Statistics and Programme Implementation, Government of India, New Delhi.

The 10 other sectors could be considered as "emerging sectors", that is, sectors which have shown strong growth in recent years responding to the changes in consumption habits of domestic population and export demand and therefore have a strong growth potential. These sectors according to their relative importance in terms of output in TE 2008 are: Soft drinks and Syrups (3.1 per cent), Animal feeds (2.9 per cent), Spirits and Alcohol (2.9 per cent), Bakery products (2.8 per cent), Fish (2.0 per cent), Malt and Liquors (1.8 per cent), Meat (1.5 per cent), Fruits and Vegetables (1.4 per cent), Confectionary (1.2 per cent), and Wine (0.7 per cent). These include four sectors that cover Beverages, including three Alcoholic Beverages, the latter accounting for 5.4 per cent of total output.

In terms of number of factories a significantly different picture of Food processing industries is observed. The Grain industry emerged to be the major sector with 50.3 per cent of the total and is followed by Tea, Coffee and Others (16.4 per cent) and Oils and Fats (9.4 per cent). The five "traditional sectors" account for 83.2 per cent of the total number of plants.

The number of persons employed in Food processing industry shows a distribution unrelated with either the output or the number of plants. The Tea, coffee and others (26.2 per cent) emerged as a predominant sector and is followed by Grain (21.0 per cent), Sugar (18.4 per cent), Oils and fats (7.0 per cent) and Dairy (6.4 per cent). These five sectors account for 79.0 per cent of the total labour force employed in food processing industry.

The "traditional sectors" continue to dominate the Food processing industry. Some variability is noticeable in respect of growth performance within the traditional sector, for example, the dairy sector, even though a part of the "traditional sector", has remained a fast growing sector and has benefited from the development of the new households' habits and the increase of households' incomes. However, the emerging sectors like Beverages, Fruits, Meats, Fish, etc, are far from dominating the scene. These may have high potential but could not succeed to exploit it fully as of now.

The number of persons employed per unit of output (No. of persons per Rs Lakh of value of output) reveals that food processing industry as a whole employs 9 persons per lakh of output against 7 for all industries. Significant variation is observed across the food processing industries. Two of the traditional sectors, namely, Tea, coffee and others (26) and Sugar (13) employ higher number of persons, while Oils and fats (2) and Dairy (5) sectors employ very low number of persons, per lakh rupees worth of output. In the case of emerging sectors four sectors, namely, Fruits and vegetables (19), Bakery (11), Confectionary (11), and Fish (10) employ more number of persons per lakh rupees worth of output than the average of the food processing industry. The low number of persons engaged in most of the emerging sectors is because of the high value commodities they are producing and the level of technology involved.

The ratios of value of fixed capital to value of output and therefore also those of the value of total capital to value of output suffer from a major weakness because fixed capital is reported at historical or book values and since the capital stocks in different industries are of different vintages. With increasing prices of capital goods over time, this would make the industries with relatively greater investments in recent years appear relatively more capital intensive. We

compare the ratios of the value of capital to the value of output between different industries, keeping in mind this caveat.

Among the traditional sectors only sugar (120 per cent) has higher proportion of total value of capital to the value of output than the average. Among the emerging sectors, five sectors, namely, fruits and vegetables (76 %), Soft drinks and syrups (74 per cent), Wine (52 per cent), Malt and liquors (52 per cent), and Spirits and alcohol (45 per cent) have total value of capital as percentage of the value of output higher than the average. This largely reflects the technology intensive nature of these industries though it could also be due to the more recent and hence possibly the more highly priced capital structure in these industries.

The average fixed capital per persons employed is Rs 2.4 lakh. Two major sectors deviate radically with a very low capitalisation per employed, Grain Rs 1.2 lakh and Tea, coffee and others Rs 0.8 lakh. The most fixed capital intensive sector is Soft drinks and syrups with Rs 5.3 lakh per person employed. This reflects better technology and R&D in these industries as also possibly the relatively more recent investments in these industries. Kochar et al (2006) also observed the increase in capital intensity, measured as ratio of fixed capital per employee, in food processing sector since 1990-91 (at constant prices). One of the reasons for this trend is the increase in outsourcing in manufacturing segment.

The traditional sectors are predominantly labour intensive while the "emerging sectors" are capital intensive (Table 3B). Among the emerging sectors, Beverages has emerged as the most capital intensive sector and has also grown faster in terms of the number of factories. The paradox of Indian manufacturing is that a labour rich, capital poor economy using too little of the former and using the latter very inefficiently. It is also observed that little has changed since the economic reforms on account of the fact that the labour markets have not been touched and the public expenditure on education continues to be skewed towards tertiary education. If the structure of Indian industry is to be adapted to the factor endowments of the country, it is evident that the impediments in the way of labour-intensive industries must be removed and, while not relenting on the public expenditure on higher education, emphasis must be also put on skill development for making the workforce employable in such industries [Kochar *et al*, 2006].

The generation and availability of food processing technology plays an important role in enhancing the capital efficiency. The status of technology in food processing industry is presented in Box 1.

Box 1: Technology in Food Industry

Areas of Success

* Improved information transparency and price realization through disintermediation of the chain
  * ITC's e - choupal uses an innovative technology enabled solution to directly procure wheat, soya, etc, from farmers.
  * Cooperatives such as NDDB, HOPCOMS and MAHAGRAPES have integrated the chain and improved farm-gate prices.
* Lower procurement costs and better quality through contract farming arrangements
  * Poultry industry in south India has franchise farming arrangements - farmer is provided feed, day old chicks, vaccination, assured off-take and fixed rates for growing poultry. Successful integrators have decreased cost by almost 40 per cent.

Technology Gaps

* India would need food processing technologies and equipment in the following areas: processed meat, especially poultry, soft/fruit drinks, ready -to-eat/serve snacks, value-added dairy products, specialty processing equipment for bakery and confectionery items, and thermo-processing. Slaughter line equipment, dairy equipment, sausage casing/sausage making equipment, meat tenderizing equipment, pizza making machines, mixing tanks, and snack food making machinery are some major items in demand in India. Other kinds of food processing equipment/technology that have promising prospects in India include: technologies for extension of shelf life for foods especially made out of milk, fruits and vegetables and cereals; small capacity slicing and cutting machines for fruits and vegetables and meat products; de-shelling, de-husking machines to speed-up the process with oilseeds to reduce contamination due to microbial growth; processing equipment/technologies for honey; biosensors for food processing industry; and fruits and vegetable driers with uniform drying temperature. Industrial bakery and cooking and heating equipment also offers promising prospects.
* The cold-chain sector in India offers promising prospects. The facilities required for food storage and refrigerated transportation infrastructure are grossly inadequate. Indian industry continues to seek out foreign technology and equipment suppliers.
* Imports currently account for less than five percent of the total food processing equipment market. Imported state-of-the-art equipment is much more expensive than locally available products but offers significant benefits in terms of yield recovery, lower maintenance and better quality output. Currently, imports from the U.S. represent 30 percent of the total imports of food equipment into India. Other major suppliers include Germany, Sweden, Switzerland and France.
* Aseptically packed creamer in mini portions is widely used in the West, but has yet to enter the Indian market in any substantial way. Amul did make a beginning with its whitener pouches and has emerged as a leader with a market share of 45 per cent followed by Nestles' 23 per cent. Its introduction will affect the existing whitener market as a natural milk product with a longer shelf life.

Trends in Agro/food Processing Sector in India:

* ***Food extrusion Technology:*** The technology has been fully absorbed and adapted to suit Indian conditions. It is especially being used in case of meat products.
* ***Cold Chain Technology:*** It minimizes the damages to raw materials from farm to factory. India is building the necessary cold chain infrastructure. The metro cities in India already have a well-connected cold chain. However, cost effective technologies are still required for the growth of food processing sector.
* ***Food preservation technologies:*** It increases the shelf life of products and also preserves the nutritional value of foods up to the point of consumption. The emerging food preservation technologies include hurdle preservation, ohmic heating, ultra high pressure processing, irradiation, modified atmosphere packaging and high - intensity pulsed electric fields, anti-microbial enzymes and active packaging. The research in non-thermal food preservation processes is being pursued in many university and industry R&D laboratories.

Trends that would shape the food processing industry in near future (Anonymous, 2009)

* Quick fix foods: Demand for easy to prepare, open and pre-cooked foods
* Natural goodness: Demand for easy to prepare, open and pre-cooked foods
* Premium food products: Higher growth in premium beverages like wine, tea, etc.
* Farm friendly: Increasing demand for organic foods
* New flavours: Demand for international flavours set to rise
* Grab and go value foods: Growth in foods which provide value by clubbing health with convenience
* Low fats, reduction of transfats, carbs: Demand for low fats, low calories, transfats and allergen free foods
* Functional food: Demand for 'healing' food products like nutraceutical food products

Value Addition

The development of Food processing industry is given top priority by the government as it embodies huge potential for employment generation and value addition, the latter implying a large income generation. The study analysed the net value added (NVA) that included only the remuneration of factors (wage, profit, rent, interest) for understanding the performance of the various sub sectors of Food processing industry. The proportion of NVA to total value of output is low for Food processing industry (10.8 per cent) compared to that for All industry (16.6 per cent) (Table 4). This proportion varies among the sectors, from 26.3 per cent for confectionery to 5.7 per cent in the most important sector by the value of output, *i.e.*, Oils and fats. The Grain industry which is the second most important sector in terms of value of output has NVA as proportion of value of output of 7.9 per cent. These two sectors, Oils and fats and Grains, have a depressing effect on the performance of the industry in respect of value addition. The four major emerging sectors, namely, Soft drink and syrup (40.6 per cent), Wine (33.7 per cent), Spirits and alcohol (25.4 per cent), and Malt and liquors (24.1 per cent), perform better while three other emerging sectors, namely, Meat (10.2 per cent), Fish (7.2 per cent), and Animal feeds (7.1 per cent) do not. The four Beverage sectors have the NVA ranging between 24.1 per cent and 40.6 per cent. Among the "emerging sectors", the performance in terms of NVA, as judged by the percentage of NVA to output, is also very high for Confectionary (26.3 per cent), Bakery (17.0 per cent) and Fruits and Vegetables (13.4 per cent).

Table 4. Distribution of NVA in Food Industries in India, TE2008

Type of industry	NVA		NVA/ Output		Per cent			
	(crore Rs) (Constant, at 1993-94 prices)	CAGR (%)	Per cent	CAGR (%)	Labour (emoluments)	Profit	Interest	Rent
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Oils and fats	2,757	5.74	5.7	-1.73	13.4	67.0	18.4	0.5
Grain	2,904	9.35	7.9	0.99	23.3	43.9	29.9	0.4
Sugar	2,391	0.96	10.4	-2.86	88.0	-80.5	90.0	1.1
Dairy	1,394	8.57	7.3	0.44	52.4	33.5	11.1	0.4
Tea, coffee, others	2,469	3.03	16.1	-2.00	38.7	48.4	10.5	0.4
Animal Feeds	367	9.41	7.1	-1.85	39.5	44.3	12.1	0.2
Fish	259	4.72	7.2	-3.02	40.7	19.3	35.9	1.3
Bakery	848	7.98	17.0	-0.64	31.9	61.7	4.4	0.4
Soft drink and syrups	2,227	16.50	40.6	0.99	13.4	83.1	2.6	2.2
Spirits and alcohol	1,325	7.72	25.4	-0.68	15.6	75.0	7.9	0.2
Malt and liquors	774	8.31	24.1	-0.69	21.7	65.0	8.7	1.3
Confectionary	530	14.67	26.3	1.77	24.5	69.1	3.8	0.2
Fruits and vegetables	314	13.17	13.4	-0.73	57.0	0.5	30.8	0.4
Meat	276	11.95	10.2	-4.73	31.6	55.8	10.9	0.4
Wine	396	14.67	33.7	1.20	13.5	75.4	6.4	0.1
All foods	19,133	6.29	10.8	-1.40	30.5	47.7	20.3	0.7
All industries	2,45,699	6.68	16.6	-1.05	27.3	59.7	11.4	0.7

Source: GoI (various issues), Annual Survey of Industries, Ministry of Statistics and Programme Implementation, Government of India, New Delhi.

The Sugar industry with 12.3 per cent of the value of output is producing comparable net value added (Rs 2391.4 crore) to that of Oils and fats (Rs 2756.9 crore) or Grain (Rs 2904.4 crore). It is noteworthy that the four Beverage sectors with value of output of 8.5 per cent of the total and 7.6 per cent of the labour force are responsible for Rs 4721.8 crore of net value added, which is significantly higher than that of either of the major traditional sectors *i.e.*, Oils and fats, Grain or even Dairy. This clearly signifies the importance of the emerging sectors in national economy.

The evaluation of Meat sector reveals that it is in many countries an economic activity with high value addition. The Meat sector involves a number of activities like, slaughtering activity, the primary cutting, the trimming, preparation, and packaging in optimal sanitary conditions. It is observed that these activities are not generally performed in the Indian meat plants. The arrival of retail chains may have a positive influence on the NVA in this sector and would enhance the quality of the produce and meet higher sanitary requirements. The Mexican food retail experienced that the FDI led to spur in competition and diffusion of FDI-introduced innovation across industry (refer to Box 2 for impact of food retail chains). In Brazilian food retail, high competitive intensity caused by informal players forced all modern retailers to rapidly increase productivity. The integration into the global economy through FDI also improves standards of living by improving productivity and creating output growth [FICCI, 2005]. In Thailand the FDI has encouraged the growth of agro-food processing industry and enhanced the exports through networks of the foreign retailers [Mukherjee and Patel, 2005].

Box 2. Impact of Food Retail Chains

The entry of Wal-Mart into Mexico (Walmex) provided access to a larger market. The arrival of Walmex separated potential suppliers into two groups, those with appealing products and those with less appealing products. Using logit demand system it was shown that the former choose Walmex as their retailer [Iacovone et al., 2009]. The associated market share reallocations, adjustments in innovative effort, and exit patterns increase productivity and the rate of innovation. It is observed that a ten percent increase in the number of Walmex stores in the state is associated with a 1.4 per cent and a 2.8 per cent increase in R&D and technology acquisition expenditure, respectively [Iacovone et al., 2009; Chavez, 2002; Javorcik et al., 2006; Durand, 2007].

The FDI in the retail sector in some Central and Eastern European countries has facilitated productivity growth of local dairy farmers [Swinnen et al., 2006]. Javorcik and Li [2008] observed that the expansion of global retail chains in Romania led to a significant increase in the total factor productivity in the supplying industries. This suggests that the opening of the retail sector to foreign direct investment may stimulate productivity growth in upstream manufacturing [Javorcik, 2004; Blalock and Gertler, 2008; Görg and Greenaway, 2004]. It is observed that while foreign investors have an incentive to prevent knowledge leakage to their competitors, they may encourage transfer of information to their local suppliers.

Joseph et al., [2008] analysed the impact of organised retailing on the unorganised sector in India. The unorganised retailers in the vicinity of organised retailers experienced a decline in their volume of business and profit in the initial years. However, the adverse impact weakened over time. The traditional retailers responded to this new situation through improved business practices and technology up-gradation. The steps taken by unorganised retailers include adding new product lines and brands, better display, renovation of the store, introduction of self service, enhanced home delivery, more credit sales, acceptance of credit cards, etc. The unorganised retailers have significant competitive strengths that include consumer goodwill, credit sales, amenability to bargaining, ability to sell loose items, convenient timings, and home delivery.

The consumers of all income groups saved through organised retail purchases. The profit realisation for farmers selling directly to organised retailers is about 60 per cent higher than that received from selling in the *mandi* [Joseph et al., 2008]. The large manufacturers have responded to increased competition from organised retail through building and reinforcing their brand strength, increasing their own retail presence, 'adopting' small retailers, and setting up dedicated teams to deal with modern retailers. Entry of organised retail is transforming the logistics industry. China resources enterprise [2002] is saving 40 per cent in distribution costs by combining modern logistics with centralised distribution in its two large new distribution centres in Southern China. Non-traditional players specialise in a product category and are dedicated to the supermarket sector as a primary client. These specialised and dedicated wholesalers cut transaction, coordination, and search costs and enforce private standards and contracts with suppliers on behalf of the supermarkets. An example from Central America is Hortifruti (in the same holding company as the Costa Rica-based chain CSU, which became part of Wal-Mart in 2006). Hortifruti undertakes contract farming and spot-market purchases to source produce for the CSU stores in Costa Rica, Nicaragua, and Honduras, following the private standards of that chain [Berdegué et al. 2005]. Finally, retail chains increasingly outsource logistics and wholesale distribution functions, entering into joint ventures with other firms or outsourcing to a company in the same holding company as the supermarket chain. An example is Wu-Mei of China, which announced in March 2002 that it will build a large distribution centre to be operated jointly with Tibbett and Britten Logistics, a British global multinational firm (*CIES Food Business Forum* 2002). Ahold's distribution centre for fruit and vegetables in Thailand is operated in partnership with TNT Logistics of the Netherlands [Boselie, 2002]. These are important cases of "follow sourcing," where a foreign logistics company or other supplier follows their retailer client into a developing country market [see Reardon et al. 2007]. This will create significant positive externalities across the economy.

In TE 2008 a total of Rs 19132.8 crore per annum of value (income) was created that was distributed among the factors. The labour, capital and rent obtained 30.5 per cent, 68.0 per cent and 0.7 per cent of the total value addition, respectively. The proportion of NVA attributable to capital could be further divided between profits and interests which is 47.7 per cent, 20.3 per cent, respectively. The magnitude of profit reveals that the banking system could be the major gainer but it all depends on the proportion of capital invested and risk taken by it. The higher profit in food processing industry assures the contributors of capital that the earnings could be shared with them and that repayment of loan amount would not be a problem.

There is no easy rule to determine, what the right proportion of sharing value between labour and capital is? It all depends on the capital or labour intensity of the activity. It is, however, observed that the profit share varies from a low -80.5 per cent in Sugar to 83.1per cent in Soft drink and syrups. In many sectors the share of profit is more than 30 per cent of the NVA.

The case of Sugar calls for some comments with a major loss and incredibly high interest paid as a share of NVA (90.0 per cent). The period 1998-99 to 2002-03 recorded good weather conditions, resulting in high sugarcane production and also that of sugar. The resulting accumulation of stock of sugar led to a fall in price realisation by the sugar industry. The low cash realisation affects cash flows and the ability of sugar mills to service debts and interest on loans for modernisation/ expansion/ by-product utilisation. The perspective of financial institutions/banks with regard to the sugar industry becomes negative in the adverse sugar market scenario. On the other hand, low sugar production as experienced in the year 2003-04, reduces the ability of sugar factories to service their debts and also affects running of the sugar factory because of inadequate availability of working capital. Thus, the sugar industry finds itself entangled in a complex web of problems of high stocks, low prices, poor profitability, mounting cane price arrears, financial crunch (or outright sickness), limited modernisation/expansion/diversification, and weak international competitive edge. There is a need for sound pricing policy to revive the sugar industry. The policies include: sugarcane

price should be fixed on the basis of norms that ensure a positive net return to the farmer, enable farmer to attain a share of the high profits whenever sugar prices rule high, and take into account the total earning potential of not only sugar but by-products also; SMP should be the only basis for cane price payments across the country; evolve mechanism for avoidance of arrears in cane payments; mills may create reserves during high profit years - with tax benefits - for meeting liquidity constraints that arise during periods of low sugar prices and high cane production; the penalties against delays in payments should be enforced through better regulation; over the long term, government should withdraw from fixing the price of sugar cane. The government has taken a number of steps for financial restructuring and for meeting the credit needs of the sugar industry, *i.e.*, conversion of outstanding debt to medium term and long term loans; making available working capital through National Cooperative Development Corporation (NCDC) at a cheaper rate than what is available from cooperative banks to the cooperative sugar mills; rehabilitation of cooperative sugar industries about 130 of which were having negative net worth by 31st March 2003, rationalisation of interest rate for Sugar Development Fund (SDF) loan, etc. The "emerging sectors" have to face a number of challenges. For example, the demand for their product is not so wide based. The capital intensive nature of firms in these sectors reflected by the high share of profits and interest in case of Beverages, for example, means entry is not that easy; it also means they are technology intensive which has implications on capital requirement. The extent of value addition in meat and fish is not much and the demand for more value added products of these commodities is still at low level. The export demand for highly processed products is also not very consistent and face non-tariff barriers like SPS measures. The incidence of detention is greater on developing country imports (54 per cent) relative to the trading significance of these countries compared to the developed countries (41 per cent) of total food imports to the USA [Athukorala, et al., 2002]. The growing health awareness among the consumers in India and abroad and on the other hand a recent food contamination scam in China which has impacted the entire Asian, European and the US food markets have once again raised the question of food safety and quality - which is always a chief concern for food manufacturers [Associated press, 2008].

Performance of the Food Processing Industry

The various financial ratios revealing the performance of the Food processing industries are presented in Table 5. The food processing industry has recorded an annual output growth rate (CAGR) of 7.42 per cent during the study period. Among the five large sectors, three sectors have recorded growth rate more than the average; these are, Oils and fats (7.60 per cent), Grain (8.27 per cent) and Dairy (8.10 per cent). However, a number of "emerging sectors" have recorded higher growth than the overall average growth rate of the food processing industry; these are; Soft Drinks and syrups (15.35 per cent), Spirits and alcohol (8.45 per cent), Malt and liquors (9.06 per cent), Confectionary (12.68 per cent). This reveals that the "emerging sectors" are responding to the changing demand pattern of the consumers by making available more and more of such products.

Capital Investment

As stated earlier, it is the capital investment that supported the growth of the industry over the study period. The overall growth rate of total investment (at constant prices) was 7.9 per cent with some sectors exceeding this , namely,, Soft drinks and syrups (16.7 per cent), Meat (16.1 per cent), Fish (11.5 per cent). Four sectors have a growth of total investment lower than the average, Sugar (6.9 per cent), Milk (6.5 per cent), Tea, coffee, others (6.2 per cent), and Oils and Fats

(5.9 per cent). The variation in fixed capital, the production tool, across Food processing industry was also examined. It may again be noted that such an examination suffers from the limitations imposed by the fact that fixed capital is reported at book values or historical costs. In most of the cases the growth rate is higher for fixed capital compared to total capital which means that more effort was made on increasing fixed capital than short term capital. There are two noticeable exceptions, Grain and Soft drinks and syrups. At the end of the period (TE2008), the ratio of fixed capital to total capital is extremely low in the two industries, Grain 32.2 per cent and Oils and fats 40.4 per cent. Most emerging sectors have a fixed/total capital ratio in the range of 70 per cent. It probably reflects a better management of primary and finished products stocks. Anonymous [2009] observed that the inventory turnover of the Indian food processing industries is less than 6.7 and for most of the companies is nearly 4. This indicates that companies are stocking nearly 3 months of requirement. This could primarily be due to low levels of collaboration across the supply chain which reduces viability and flexibility of the companies.

Capital Productivity

To measure the productivity of capital the NVA per fixed capital was used. The average value of NVA per fixed capital for Food processing industry was observed to be 54.1 per cent (Table 6). The sectors where the ratio is the lowest are Sugar (19.7 per cent), Fruits and vegetables (25.1 per cent), Fish (49.2 per cent), and Meat (50.6 per cent). The sectors where the ratio is higher are Wine (119.8 per cent), Soft drinks and syrups (96.2 per cent), Bakery (97.5 per cent) and Confectionary (93.6 per cent). The capital productivity depends directly on the growth of NVA and inversely on the fixed capital. Relatively higher capital productivity in most of the emerging sectors demands greater flow of funds to these sectors considering the prospects for growth of these sectors, with growth of demand with increase in incomes.

Table 5. Capital Invested and Intensity for Food Processing Industries in India, TE2008

Food industries	Total capital		Fixed capital		Fixed/total	
	(crore Rs)	CAGR (%)	(crore Rs)	CAGR (%)	%	CAGR (%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Oils and fats	9,447	5.9	3,802	6.3	40.4	0.26
Grain	11,512	9.8	3,672	9.3	32.2	-0.48
Sugar	26,060	6.9	12,801	8.5	49.1	1.41
Dairy	3,739	6.5	2,126	7.1	56.5	0.57
Tea, coffee, others	5,323	6.2	3,174	6.9	59.5	1.01
Animal Feeds	1,062	11.1	512	12.1	48.1	0.95
Fish	1,139	11.5	544	11.7	47.8	0.19
Bakery	1,212	8.7	870	9.7	71.6	0.89
Soft drink and syrups	3,802	16.7	2,325	14.1	64.6	-2.23
Spirits and alcohol	2,359	8.6	1,782	10.5	75.9	1.79
Malt and liquors	1,685	9.5	1,241	10.1	73.7	0.57
Confectionary	779	11.56	600	12.9	76.6	1.16
Fruits and vegetables	1,872	15.5	1,318	15.8	70.3	1.18
Meat	619	16.1	550	16.7	70.5	0.48
Wine	612	11.9	336	13.3	54.7	1.22
All foods	71,220	7.9	35,652	8.9	50	0.95
All industries	6,78,465	5.1	4,56,326	4.9	67.2	-0.13

Source: GoI (various issues), Annual Survey of Industries, Ministry of Statistics and Programme Implementation, Government of India, New Delhi.

Labour Productivity

The labour productivity is an important tool to assess the performance of industry. There are two possible measures for labour productivity; total production per worker or NVA per worker, the latter is used in the present study. The NVA per worker for Food processing industry is observed to be low at Rs 1.28 lakh. The sectors like Grain (Rs 0.92 lakh), Sugar (0.87 lakh), Fruits and vegetables (Rs 0.69 lakh) and Tea, coffee and others (Rs 0.63 lakh) are performing lower than average (Table 6). At the other end are the sectors like Wine (Rs 5.27 lakh), Soft drinks and syrups (Rs 5.03 lakh), Spirits and alcohol (Rs 3.58 lakh), Malt and liquors (Rs 3.09 lakh), Confectionary (Rs 2.44 lakh) and Meat (Rs 1.90 lakh) which are performing much better than the average. It is, therefore, revealed that the most productive sectors are all in the "emerging sectors" and that the four beverages perform very well. Three of the five large sectors, namely, Grain, Sugar, and Tea, coffee and others on the other hand, perform lower than the average. These three sectors account for more than 70 per cent of all labour force employed in the Food processing sectors. This would have implications for the emolument received by the employees and employment generation.

Table 6. Productivity Indicators of Food Industries in India, TE2008

Type of industry	NVA /engaged persons		NVA/ Fixed capital	
	(lakh Rs)	CAGR (%)	(Per cent)	CAGR (%)
(1)	(2)	(3)	(4)	(5)
Oils and fats	2.62	7.18	72.5	-0.5
Grain	0.92	7.43	78.9	0.04
Sugar	0.87	2.64	19.7	-6.95
Dairy	1.44	6.10	65.5	1.38
Tea, coffee, others	0.63	0.95	77.4	-3.64
Animal Feeds	1.20	3.22	71.9	-2.43
Fish	0.75	-0.24	49.2	-6.26
Bakery	1.57	5.14	97.5	-1.57
Soft drink and syrups	5.03	9.86	96.2	2.12
Spirits and alcohol	3.58	6.38	74.5	-2.5
Malt and liquors	3.09	2.74	65.1	-1.63
Confectionary	2.44	8.78	93.6	1.61
Fruits and vegetables	0.69	5.89	25.1	-2.24
Meat	1.90	2.09	50.6	-4.06
Wine	5.27	9.10	119.8	1.22
All foods	1.28	4.99	54.1	-2.44
All industries	2.30	6.15	54.1	1.68

Source: GoI (various issues), Annual Survey of Industries, Ministry of Statistics and Programme Implementation, Government of India, New Delhi.

Factor Remunerations

Remuneration to Labour

It is hypothesised that the development of food processing industry would create jobs and, in consequence, would ameliorate the unemployment problem to some extent. It is, however, clear that growth in output or capital investment did not proportionately lead to an increase in the jobs created. From 1989 to 2008, the number of persons employed increased only by 1.25 per cent per annum with an increase in production of 7.42 per cent per annum. The NVA recorded a growth of 6.29 per cent per annum and the share of labour in this **net value added** -created increased from 13.4 to 88.0 per cent. This reveals that more value has been created with a larger share going to workers. A substantial portion of NVA is shared with the workers.

Table 7. Factor Remunerations in the Food Processing Industry in India, TE2008

Food industries	Wages/ workers		Profit rate		Debt rate		Interest rate	
	(Rs lakhs/ year)	CAGR (%)	(%)	CAGR (%)	(%)	CAGR (%)	(%)	CAGR (%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Oils and fats	0.23	2.22	32.1	3.92	38.3	0.77	14.4	-3.77
Grain	0.16	3.26	17.7	4.15	35.7	0.11	21	-1.53
Sugar	0.36	2.86	-4.9	3.97	45	0.95	12.9	-1.23
Dairy	0.42	2.04	21.8	-0.38	42.7	-1.55	9.5	-1.08
Tea, coffee, others	0.13	2.75	39.9	-4.09	43.8	2.68	11.2	-4.24
Animal Feeds	0.28	2.19	21.9	-1.25	29.6	-1.38	14.2	-1.64
Fish	0.19	2.72	6.8	-10.69	30.6	-0.67	27.8	-2.10
Bakery	0.17	-1.72	64.8	-0.5	31.1	-2.72	10.0	-2.77
Soft drink and syrups	0.32	3.57	65.8	9.87	18.1	-4.41	7.9	-6.59
Spirits and alcohol	0.33	2.24	65.5	0.94	35.0	0.14	12.8	-2.85
Malt and liquors	0.34	0.71	58.7	1.61	46.4	2.73	8.5	-7.13
Confectionary	0.31	3.38	67.5	5.59	22.9	-4.29	11.3	-4.67
Fruits and vegetables	0.19	3.42	3.2	-8.7	47.3	-1.52	9.7	-3.46
Meat	0.35	0.05	25.6	-1.53	19.8	-5.59	18.5	0.13
Wine	0.33	2.84	81.5	5.57	38.9	1.33	10.8	-4.98
All foods	0.23	2.23	21.3	-0.04	39.4	0.36	13.7	-2.06
All industries	0.33	1.19	34.4	5.32	36.8	-2.17	11.3	-1.57

Within the "Annual Survey of Industry" two categories of workers are found: the manual workers and all the others which can be attributed to white collar jobs, *i.e.*, managers and supervisors and technical workers. The number of total workers increased from 1.1 million to 1.3 million over the study period of nearly 20 years from 1989 to 2008. However, the proportion of manual workers to the total workers remained the same. On an average, the wage paid to the persons employed for TE2008 is Rs 0.23 lakh per persons employed per year (Table 7). It varies from a low of Rs 0.13 lakh in Tea, coffee and others to a maximum of Rs 0.42 lakh in Dairy. Three of the major sectors, Oils and fats, Grain and Tea, coffee and others pay a wage which is lower than the average. The wage paid per worker per year in the "emerging sector" is much more than in the "traditional sectors" revealing better performance by the "emerging sector".

Owned Capital Remuneration or Profit Rate

The analysis of profit rate, percentage of profit

on equity capital, gives a better idea of the situation and the perspectives of the Food processing industry. The Food processing industry has recorded the profit rate of 21.3 per cent and between the sectors it ranges from -4.9 per cent for Sugar to 81.5 per cent in Wine. Except for Sugar, there are three other sectors having the profit rate lower than the average for the food processing industry, namely, Grain (17.7 per cent), Fish (6.8 per cent), and Fruits and vegetables (3.2 per cent). However, at the other end, many sectors considered as emerging have recorded a profit rate which is higher than the average. It could be stated that the food processing sector in general is a rewarding proposition to invest into by entrepreneurs.

Borrowed Capital and Interest Paid

The data set permits computation of debt rate, that is, percentage of outstanding debt to the value of total assets, and interest rate, percentage of interest paid to outstanding loan, paid by each sector of the food processing industry. The average debt rate for the food processing industry is 39.4 per cent of the value of the total assets which is similar to that prevailing in the All industry (36.8 per cent). The sectors with low debt rates are Animal feed (29.6 per cent), Confectionary (22.9 per cent), Meat (19.8 per cent) and Soft drinks and syrups (18.1 per cent). The most in debt are Fruits and vegetables (47.3 per cent), Malt and liquor (46.4 per cent), Sugar (45.0 per cent), Tea, coffee and others (43.8 per cent), and Dairy (42.7 per cent). However, unless it is excessively high the debt rate (more than 70 per cent) does not reveal much about the financial health of the sectors.

The interest rate is the best indicator of how the bankers and other lenders look at a sector. The interest rate paid by the food processing industry was 13.7 per cent, on the average. This is slightly higher than that paid by the All Industry (11.3 per cent). The profit rate of 11 out of 15 sectors is over 20 per cent.

The Fish sector is paying one of the highest interest rates with an average of 27.8 per cent. This may be because of high amount of short term capital requirement of the sector. The sectors with lowest interest rate paid are Soft drinks and syrups (7.9 per cent), Malt and liquor (8.5 per cent), Dairy (9.5 per cent) and Fruits and vegetables (9.7 per cent), Bakery (10.0 per cent), Wine (10.8 per cent) and Confectionary (11.3 per cent). These sectors seem to command a relatively low risk premium. It could also be hypothesised that these sectors have access to financial markets not available to the other sectors. The presence of multinational firms may be a factor that facilitates this access (Appendix V). The presence of cooperatives in the dairy sector, the loans to which sector are made available at subsidised interest rates, may also be an explanation to the observed phenomena of low interest rate prevalent in the sector. The interest component forms sizeable portion of the cost of production of cooperative sugar mills. The working capital requirement of such mills was made available through the National Cooperative Development Corporation (NCDC) at subsidised interest rate. The NCDC in turn had to arrange cheaper funds through External Commercial Borrowing (ECBs) and the Government of India was to accord permission as well as provide guarantee in this regard. The sugar development fund was formed in 1982 under the act of parliament to provide, *inter alia*, for the financing of activities for development of sugar industry. The funds are made available to the sugar factories for Bagasse-based co-generation power projects, and production of anhydrous alcohol or ethanol from alcohol with a view to improving their viability. The interest rate charged on its funds are 2 per cent blow the bank rate [Tuteja, 2004].

The high debt rate may be because the "emerging sectors" are capital intensive including fixed and working capital and need to borrow in order to invest. It has also implications that more funds need to be made available at favourable terms and conditions for greater prosperity of "emerging sectors" in order to enhance their performance.

Policy Initiatives and Implications

A number of policy initiatives have been taken up in the past to boost food processing industry. The mega food parks scheme; scheme of up-gradation of quality street food; scheme for research and development; operational guidelines for cold chain, value addition and preservation of infrastructure; scheme for implementation of Hazard Analysis and Critical Control Points (HACCP)/ISO 22000, ISO 14000/ Good Hygiene Practices (GHP)/ Good Manufacturing Practices (GMP) Quality/ Safety Management System; scheme of technology up-gradation/ setting up/ modernisation/ expansion of food processing industries. Scheme for infrastructure development-Mega parks, Integrated cold chain; Scheme for setting up/modernisation of abattoir; Schemes for setting up/up-gradation of quality control /food testing laboratory, R&D and promotional activities; scheme for technology up gradation/ establishment/ modernisation of food processing industries. The government has taken up a number of policy measures to give impetus to the food processing industry (Appendix VI).

On account of the various policy initiatives coupled with the changing consumer tastes and preferences due to the impact of urbanisation, globalisation and income the food processing industry has recorded a sound growth performance. A spurt in consolidation and mergers is observed in recent period. Many MNC's have entered and many more are trying to gain access in Indian market. The MNC's and global majors in various sectors of food processing industry bring with them technology and capital, through mergers/alliances/joint ventures. Many want to take advantages of the marketing network of Indian counterparts and in certain activities related to the value chain. For example, many want to take advantage of the bottling plant facility of Indian counterpart or, to take the advantage of brand image of the existing products of Indian firms. This phenomenon is helpful to both the firms. These alliances and joint ventures are observed mainly in the emerging sectors (Appendix V).

The MNCs and industry majors of various sectors have been focusing on the product development, development of value added products, and product diversification. The same strategy needs to be adopted by other firms specially those of traditional sector to make themselves competitive.

The APMC act needs to be effectively implemented in all the states (See Appendix VIIa and b) so that the industry can invest in infrastructure creation and also enter into alliance with the farmers through contract farming to source quality produce in right quantity and price. Even where APMC has been reformed to allow for direct access of any markets by the farmers as in the case of Maharashtra, the transactions costs remain very high for individual farmers to take their produce directly to the most profitable market and to wait and/ or store or hold produce till all the produce carried to the market is sold.

The Vision 2015 document had envisaged increase in value addition from 20 per cent to 35 per cent and to increase India's share in global food trade from 1.5 per cent to 3 per cent by 2015. It is estimated that an investment of Rs 1,00,000 crore is needed by 2015 to food processing industry out of which Rs 10,000 crore is to come from Government [GoI, 2005]. However, it is encouraging to note that the food-processing

sector is one of the sectors attracting a considerable share in FDI. The inflow of FDI has increased from Rs 198.13 crore in 2000-01 to Rs 858.03 crore in 2010-11 (Table 8). Further, the development of Food Parks would surely help in attracting higher FDI for the sector. But the flow of FDI in the sector is still extremely small in comparison with the requirement. The FDI in retail sector needs to be promoted with sufficient preconditions imposed towards investment in back end activities, *i.e.*, like cold storage, cold chain management, etc. The food chain retails have led to development of the meat and poultry processing industry. Sales through organised format constitute 72 per cent of food consumption across the world but its share is about 1 per cent in India. Organised retailing reduces the number of intermediaries and transaction cost thus making it cheaper for consumers and more remunerative to farmers. The organised retail formats in China have been able to reduce the price of food products by as much as 25 per cent due to dis-intermediation [GoI, 2005]. The FDI is an important source of fund, technology and management which would bring in efficiency in the food processing sector. Efforts need to be made to devise suitable policies and enable the flow of FDI towards this important sector.

Table 8. Capital Inflow in Indian Food Processing Sector

Year	FDI inflow received in Food processing industry (Rs crore)	Gross bank credit to Food processing sector (Rs crore)				
		Sugar	Tea	Food processing	Vegetable oils (including vanaspati)	Grand total
(1)	(2)	(3)	(4)	(5)	(6)	(7)
2000-01	198.13	3832	1034	5986	2958	13810
2001-02	1036.12	4682	1058	6345	2876	14961
2002-03	176.53	5028	986	7285	2729	16028
2003-04	510.85	5726	1052	8577	2919	18274
2004-05	174.08	6363	1222	9872	3219	20676
2005-06	182.94	6928	1627	24025	3591	36171
2006-07	441.00	8776	1851	30946	5077	46650
2007-08	632.00	11551	2340	40011	6114	60016
2008-09	455.59	16080	2483	49397	7243	75203
2009-10	1314.23	17309	2731	53779	6763	80582
2010-11	858.03	19255	1995	65677	10380	97307

Source: Economic Survey 2006-07, RBI (2011), GoI (2011b)

Availability, cost and timeliness of credit are major issues. A large majority of food processing enterprises continue to face serious constraints in access to bank credit due to issues like low net worth, lack of tangible security and absence of a proven track record, usual concerns for SME sector. The food processing enterprises suffer from additional limitations due to seasonal operations and thus lower capacity utilisation. It also means higher inventory requirements which further erode profitability of the food processing units. Further, the market development and quality assurance costs are relatively higher for food processing sector. The food supply chain in India is highly fragmented, each stage of food supply chain being dealt by different firm. This enhances the risk prevailing in food processing industry. The banks look at segmented financing of food supply chain leading to high risk lending regime. Working capital is an even bigger problem for this sector and its inventory requirements are high. All these constraining factors have

resulted in bankers being wary of providing adequate finance to the sector. The banks incur high loan servicing costs due to limited volumes, lack of reliable information and high costs of information on demand-supply, pricing trends, raw material availability, high supervision costs, etc. These are passed on to the borrowers in the form of high interest rates.

The Ministry proposes to create Venture Capital Fund (VCF) for food processing sector. A dedicated VCF may allow food processing units to leverage their limited resources in a more effective manner. Further, the provision of Strategic Capital through VCF may be combined with management support and marketing linkages. The normal venture/angel funds are inclined to support only modern sectors like Information Technology and Bio-technology which promise projected returns justifying strategic stakes in them. The proposed venture capital fund would encourage "viability" but its touchstone should be "livelihood" and should thus prefer projects which have a potential to impact the largest number of the rural poor [GoI, 2011b].

Commodity backed lending is believed to be one of the best forms of funding for a food processing company world over. Its use is constrained as the banks are not allowed to cover their portfolio of commodity assets in the commodity exchanges. Thus, the exposure of a bank to commodities is un-hedged and this reduces its risk appetite. Measures such as amendments in Negotiable Instruments Act to introduce negotiability of warehouse receipts, creation of appropriate regulatory environment, dematerialisation of warehouse receipts and creation of a network of warehouses will further promote warehouse receipt based financing [GoI 2006].

Factoring services provides liquidity to the trade channel through vendor and dealer/ distributor financing. While vendor bill discounting offers limited risk to the banks due to the guarantee provided by large Corporates, invoice discounting of dealers/ distributors are not developed, limiting the availability of credit to trade channel.

Of the priority sector target of 18 per cent to agriculture, 13.5 per cent is required to be provided as direct agricultural advances, while indirect agricultural advances may account for balance 4.5 per cent. The working group on food processing sector, set up for the Eleventh five year plan, by the Ministry of food processing industries, Government of India, [GoI, 2006] has recommended that since investments in food processing sector directly benefit the farmers in better realisation of value for their produce, the sub-limit for direct advances to agricultural sector be widened suitably to include advances to food processing industries. However, this is likely to adversely affect already inadequate direct finance of agriculture from banks. Hence, it may be better to bank credit to food processing sector in the sub-limit for indirect advances to agricultural sector. The food processing sector with investments in plants and machinery up to Rs 5 crore qualify for priority sector credit. This limit needs to be raised to take advantage of scale [GoI, 2006].

While apparently there are a host of fiscal incentives available to food processing sector, including exemption from income taxes for a limited period, the high incidence of taxation remains a concern. This has happened because processed food products have been over the years regarded as luxury products meant for the richer segments of the population. Thus, while the primary agricultural commodities are mostly exempted from taxation, processed food products are subject to Central Sales Tax of 4 per cent. Under VAT, levied by state governments, most processed food products are taxed at 12 per cent to 13 per cent. Apart from VAT, other taxes such as purchase tax, entry tax, octroi, etc., are also

levied on food products. In addition, Central Excise Tax (CET) is levied on all branded products.

The present system of taxation is based on products, which gives rise to various classification related anomalies (Table 9). Rationalising the tax structure by adopting "broad banded" definition for the sector for both taxation and licensing purposes especially imposing a "low" and "uniform/flat" rate of Excise and CST as per a broad banded definition. This would have a major positive impact by allowing flexibility in manufacturing, capacities and innovation within categories leading to a reduction of transaction cost by at least 5 per cent to 10 per cent as well as direct cost reduction of 8 per cent to 16 per cent [GoI, 2006].

Table 9. Tax Anomalies Due to Product Wise Classification

Item	Central excise tax (CET)	Comparative item	CET
(1)	(2)	(3)	(4)
Soup	Nil	Rasam	8%
Jaljeera	Nil	Nimbupani	16%
Ice-cream	Nil	Ice-cream mix/ Gulab Jamun mix	16%/8%
Ready to eat	8%	New convenience foods	16%
Ready to eat Vadas/ Dosas/ Pakoras	8-16%	Squashes/ Pastas	Nil
Sugar confectionery (with cocoa)	16%	Sugar confectionery	8%
Coated wafer biscuits	16%	Biscuits	8%

Source: GoI [2006]

Packaging material for manufacture of food products still attracts high taxes though in some cases finished goods are exempted from tax. This duty on packaging material is counterproductive and industries are left with no other option but to pass on the duty to the customers. It is important that packaging material, to be used by exempted processed food industry, in printed form, is exempted from tax.

Under sub-section (11A) of section 80 IB of the Income tax act, 1961, a deduction from profits up to specified amounts (100 per cent for the first 5 assessment years and thereafter, 25 per cent (30 per cent in the case of company) for another 5 assessment years) is allowed in the case of an undertaking deriving profit from the business of processing, preservation and packaging of fruits or vegetables or from the integrated business of handling, storage and transportation of food grains subject to specified conditions, if such undertaking begins to operate such business on or after the 1st day of April, 2011. This benefit has been extended to other related sectors such as horticulture, poultry, meat, marine and aquaculture in the Union Budget of 2010-11. If the 100 per cent deduction under sub-section 11(A) of section 80 IB of the Income Tax Act, 1961, is made available for 10 assessment years at a stretch, it would stimulate the growth of the sector.

The export performance of the tea, coffee and others sector is becoming less competitive in recent years and is facing stiff competition from many of the new entrants in the international market [Kumar, *et al.,* 2008]. It is through development of value added products, brand building, and adherence of the quality standards of the importing countries in a focused manner that the performance of such industries could be improved. Enforcement of the food safety norms is necessary so that the food processing sectors makes available quality products to the domestic

and foreign consumers. This would build confidence and help change the attitude of the domestic and foreign consumers towards the processed food products.

Innovation and new product launches are the key priorities for the companies in the food processing industry in the developed countries. However, given the nascent stage of the food processing industry in India, spending on R&D has been significantly low even for large companies in the organised sector (Table 10).

Table 10. Research and Development Expenditure of Important Food Processing Industries

	Research and development expenditure	
	Absolute expenditure	Percent of gross revenue
(1)	(2)	(3)
Indian companies		
* Dabur	Rs 1.24 crores	0.06 per cent
* Britannia Industries ltd	Rs 3.47 crore	0.133 per cent
Global organizations		
* Nestle	CHF 1.97 bn	1.80 per cent
* Unilever	Euro 927 mn	2.29 per cent

Hence, both on an absolute basis as well as on a percentage basis, Indian companies have been spending lower on R&D compared to their global peers.

The decade 2010-2020 is declared as "Decade of Innovation" and the Government of India has set up "National Innovation Council". The Ministry of Food Processing Industries (MOFPI) has decided to make innovation in food processing, part of its central theme of planning for the 12th Plan. The MOFPI proposed Innovation Fund for Food Processing to identify and reward innovations. The fund would aim at supporting potential entrepreneurs with sole focus of transforming their innovations into viable business opportunities. The sound proposals would be provided with "Incubation facilities", at designated institutions, for requisite nurturing along with financial support. Such financial assistance may be in form of soft loan or grant or a mix of both, based on nature of proposals. The proposed innovation fund may thus encourage market-oriented applied research and innovation and would act as a bridge between lab and industry. The fund is likely to assist small entrepreneurs, especially from rural areas, in bringing about indigenous and low cost solutions to address sector specific concerns such as limited shelf-life and low processability of local agricultural produces.

Conclusion

The following are the main findings of the study:

1. Over the study period of twenty years (1989-2008), the Food processing industry has recorded a growth rate almost comparable to the growth rate of All Industries. The food processing industry grew at a rate of 7.4 per cent which resulted in the growth of NVA at 6.29 per cent. In terms of employment the performance of the food processing industry was far more disappointing with a CAGR of 1.25 per cent. It means that only 3.65 lakh persons joined the industry during this period.

2. The development of Food processing sector during the study period became a lot more capital intensive. The labour regulations are pointed out to be partly responsible for this situation, which is in contradiction with national employment goals [GoI, 2005]. However, the capital intensity in the food processing industries trails behind that prevailing in All industries.

3. In terms of output, employment or number of factories, five traditional sectors *i.e.;* Oils and fats; Grain; Sugar; Dairy and Tea, coffee and others, still dominate the food processing industry. These account for 79.7 per cent of output, 79.0 per cent of employment and 83.2 per cent of number of factories in the food processing industries but their share is just 62.3 per cent of NVA of the food processing industries. The ratio of NVA to output is very low for the three important sectors *i.e.,* oils and fats (5.7 per cent), Dairy (7.3 per cent) and grain (7.9 per cent). This affects the percentage of NVA to output of the whole of food processing industry (10.8 per cent) placing it much lower than that of All Industries (16.6 per cent).
4. Among the ten "emerging sectors", most are still very small with less than 2 per cent of total output of food processing industry. However, their performance in terms of output, NVA and employment is better than the average.
5. The NVA per employed person averages to a low level of Rs 1.28 lakh per year; two of the major sectors (Grain; Tea, coffee and others) are stagnating at one half of this. Thus, it is concluded that the large proportion of the employed persons have a low productivity. The "emerging sectors" have relatively higher NVA/employed.
6. Larger income generation can be achieved through an increase in employment and also through an increase in the wage paid. On average, the food industry pays an annual wage to its workers of Rs 0.23 lakh per year. This amounts to a meagre Rs 60 per day during the TE 2008. The "emerging sectors", on the other hand, are offering a slightly higher wage of Rs 0.25 lakh per year to their employees.
7. The capacity to attract entrepreneurs is related to the extent of profit realised from different Food processing sectors. The Food processing industry has recorded a low profit rate on owned capital (21.3 per cent). However, all the "emerging sectors" except two *i.e.*, Fruits and vegetables and Fish, are realising a profit rate above the average for the Food processing industry. In sectors like Wine, Confectionary, Spirits and alcohol, Soft drinks and syrups, and Bakery the profit rate realised is even more than 50 per cent.
8. Borrowed capital is an important factor getting rewarded from the NVA of Food processing industry. The debt ratio represents only 39.4 per cent of the total capital, which means it is the cost of capital that explains the share of interest in the NVA. The interest rate paid, on average, is 13.7 per cent and is definitely more than what the industry as a whole pays (11.3 per cent). Bankers tend to include a substantial risk premium on the sector. The importance of short term capital also greatly influences the interest rate paid. On the other side, Soft drinks and syrups benefits from an extremely low interest rate which may be because of its capacity to borrow on foreign markets.
9. The food processing industry has a strong potential in India and there is still a scope for further development and improvement to meet the national objective of employment and income generation. The industry should use more of labour which could be facilitated by liberal labour laws.

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Appendix I. Classification of Food Industries

Type of food processing industry	NIC 1987 Code	NIC 1998 Code	NIC 2004 Code	NIC 2008 Code
(1)	(2)	(3)	(4)	(5)
Meat	200	1511	1511	1010
Dairy	201	1520	1520	1050
Fruits and vegetables	202	1513	1513p	1030
Fish	203	1512	1512p	1020
Grain	204	1531	1531	1061
Bakery	205	1541	1541	1071
Sugar	206+207	1542	1542	1072
Confectionary	209	1543	1543	1073
Oils and fats	210+211+212	1514	1514	1040
Tea and coffee, others	213+214+215+219	1544+1549	1544p+1512p+1513 p+1544p+1549p+1 549p+2429p	1074+1075+1079
Animal feeds	217	1533	1533	1080
Spirits and alcohol	220+223	1551	1551	101
Wine	221	1552	1552	0113p+1552
Malt and liquor	222	1553	1553	1103
Soft drinks & syrups	216+224	1554	1554	1104

Note: Minor changes in classification of two of the food processing industry categories were noticed *i.e.*, Tea, coffee and others and other being the Wine. However since the major composition and constitution of industry remained same as that in NAIC 1987 and 1998 classifications the same were ignored and analysis was carried forward. Moreover since the Triennium average was being carried out the differences were presumed to be evened out.

Appendix II. Kerala Detentions of Fish and Fishery Products at the EU Border, 1997-2003

Year	1997	1998	1999	2000	2001	2002	2003
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Salmonella	10	0	3	2	3	4	1
Aerobic mesophiles	1	0	0	0	3	1	1
Vibrio cholerae	2	1	0	1	0	1	1
Vibrio cholerae non-01	1	0	0	0	1	1	1
Vibrio parahaemolyticus	1	1	0	0	2	1	1
Faecal streptococci	1	0	0	0	0	0	0
S. Aureus	0	0	0	1	0	0	0
Antibiotic residues	0	0	0	0	0	5	6
Bacterial inhibitors	0	0	0	0	0	9	4
Heavy metals	0	0	0	0	0	0	1
Total	10	2	9	4	3	22	16

Source: Export Inspection Council

Appendix-III. Non-tariff Barriers Faced by Indian Agricultural Products

NON-TARIFF BARRIERS

A. European Communities

* Lack of harmonization of egg products standards in EU member countries. The egg standards have been harmonized within EU, the same is not true for approval of firms processing and exporting egg products. As a result the exporting firms are forced to approach each member state individually for approval.

* **Different MRLs by the member countries for pesticides, drugs and other contaminants:** The default level of the MRLs (Maximum residue levels) for pesticides and drugs set by EU are quite high. MRLs of pesticides are applied to both products of animal and plant origin. The regulation is silent about setting up of MRLs as well as harmonization of MRLs in case of drugs, antibiotics and other contaminants for products of animal origin. In the absence of MRL, minimum required performance limit (MRPL) has to be followed. The default MRPL level is very high and does not have a risk assessment based scientific justification. EC should set up MRLs rather than insisting on MRPLs. Further, EC should harmonise MRLs for all compounds.
* **Definition of Whiskies - CN Code:** European Commission doesnot recognise Indian whisky as a "whisky" in the EU market. In their view, molasses based whisky cannot be treated as whisky. As per the CN Code, an alcoholic beverage can be called a whisky
  only if it produced exclusively from cereals by distillation and is matured for a period of three years.

* **Market Access for Mushrooms:** The EU is expected to provide market access to a certain extent every year. The market access of preserved mushrooms is increased, but only for those countries that do not have the capacity to fulfil even half of their quota.
* **Complex Procedures for Sampling/Product Testing:** The EU requirements for the sampling and product testing in the export of Hand-Picked and Shelled (HPS) groundnuts are very cumbersome. Over the past few years various Directives have been issued by the EU stipulating quality requirements which are getting more stringent without much justification.

Japan

* **Stringent plant quarantine procedures:** Impractical plant quarantine procedures are for example: i) zero tolerance for the insects and pests which already exist in Japan, and ii) The consignments are fumigated even when the fumigation has been done by the exporters and phyto sanitary certificate accompany the consignment.

* **Unfair trade practice:** Indian roses are brought to auction platforms towards the end of the auction process after all domestic supply is auctioned leading to low price realisation for Indian flowers.

Ban on the import of fresh grapes from India on the basis of report of the incidence of oriental fruit fly on grapes in Pakistan

The Japanese authorities are quoting one reference of 1960 stating that grapes in Pakistan are infested with oriental fruit fly *(Bactrocera dorsalis)*. On this pretext Japan has banned import of grapes from India for presence of fruit fly. It has been stated that there is not a single report stating that grapes are the host of fruit flies. The survey conducted by premier research institutes, namely, National Research Centre for Grapes, Pune and Indian Institute of Horticulture research, Bangalore on presence of fruit flies in Indian grapes produced in Western and Southern regions revealed that there is no infestation of *Bactrocera dorsalis* fruit fly in our grapes.

USA

Mangoes - High Cost of Certification: The fresh mangoes are processed with irradiation process of BARC irradiation facilities located at Lasalgaon, Maharashtra. However the cost of certification is still an issue. According to the requirements, the entire cost of travel and stay of the U.S. Department of Agriculture (USDA) inspector in India at the irradiation facility as well as the officials of USDA located at different places and involved in the process will have to be borne by India. The cost would increase with the increase in the number of irradiation facilities thus hampering the commercial viability of the mango exports to the US. It is felt that a mutually acceptable solution needs to be found for bringing down the transaction cost. Recognition of India's conformity assessment procedure can be a good solution.

(Contd.)

Appendix-III. (Concld.)

*** Equivalence Agreement on Organic Products:** The provision that products of Indian origin only are allowed to be certified by the accredited certification bodies is trade restrictive as they are not able to expand their business outside the shores of India. The Indian certification bodies are deprived of the opportunity of providing services in neighbouring countries. The EU equivalence includes only horticulture products and does not cover honey.

B. China

*** Delay in finalisation of protocol on phyto sanitary measures and certification procedures:** It is observed that a very long process is involved in getting market access for a particular fruit or vegetable. Such rigors were experienced before India succeeded in getting market access for Indian mangoes in June 2003 and for grapes and bitter gourd in April 2005. The Chinese quarantine authorities expressed that it would be impossible for them to assess the pest risk analysis (PRA) work for all the listed fruits and vegetables at one time.

*** Approval of Processing Units for Meat:** The Chinese authorities were apprised of control measures taken by the Government of India for Foot and Mouth Disease (FMD), export of meat from India, inspection and strict control of operations of the approved abattoirs. However, the Chinese authorities are delaying and denying market access for Indian meat.

Litchi - Alternative Method for Fumigation: The US has allowed market access for Indian litchis with cold treatment process as a quarantine measure. The US does not allow SO_2 fumigation as post harvest treatment. Indian exporters are of the view that unless SO_2 fumigation is permitted as a post harvest treatment, shelf-life of litchi cannot be extended for the desired period. Further, as in the case of mangoes, there is a requirement of creating a trust fund for litchis also to allow the US inspectors to supervise the cold treatment. This would increase the transaction cost.

Source: http://www.apeda.gov.in/apedawebsite/Databank/NTBs_July_08.pdf

Appendix IV. Cost of Implementing HACCP Plant in Selected Countries in Asia

Cost categories	Thailand	India	Bangladesh	Philippines	Malaysia
(1)	(2)	(3)	(4)	(5)	(6)
Total investment of a plant ($'000)	381-405	309	277	2,337	3,000
Maintenance cost of a plant ($'000/year)	4-71	41	35	85	na
Cost of fish processing ($/kg)	0.010-0.014	0.21-0.28	0.033-0.090	na	na

Note: HACCP = hazard analysis and critical control point, na = not available

Sources: Cato JC, Santos ALD. 1998. European Union 1997 seafood safety bans: The economic impact on Bangladesh shrimp processing. Marine Resource Economics, 13, 215-227; field survey

Appendix V. Features of the Major Food Processing Industries

Lead players	
(1)	(2)
SOFT DRINKS **Products** * Cola & Non-cola (soda, clear lime, cloudy lime, drinks with orange or mango flavours) **Lead Players** * Aradhna, Varun Beverages, Devyani beverages, Kadhari beverages, Ludhiana beverages, Sri Sarvarya sugars, Pearl drinks, Pearl beverages. **Features** * Strong forward and backward linkages with glass, plastic, refrigeration, sugar and transportation industry * Attracted highest FDI in the country * Coco-cola and Pepsi are expanding their product range and moving to non-carbonated drink line-ups. * ***Important alliances:*** Coco-Cola acquired Parle (bottling facilities, marketing networks, established consumer preferences of its products), and Cadbury Schweppes; Pepsi is in marketing tie up with HLL to promote sales	**DAIRY** **Products** * Ghee, butter, yogurt, paneer, cheese, flavoured milk, ice creams, UHT processed milk, shredded and liquid cheese, etc. **Lead Players** * 170 milk producer cooperative unions which federate into 15 state cooperative milk marketing federation; 550 plants in the country. * Leading dairies are Gujarat Cooperative with Amul brand, Karnataka Milk Federation, Mahanand Dairy, Tamil Nadu Cooperative Milk Producers' Federation Limited, Heritage, Nilgiri Dairy Farm Pvt Ltd, Hatsun, Cavinkare Dairy, GRB Dairy, Cream Line Dairy and Parag Milk Foods, Tirumala Milk Products, Gokul and Sridevi Milk Products. *Cheese: Amul, Britania, Dabur* (Le bon), Verka, Nandini, Vijaya, Vadilal, Probolene, Colby, Mozzarella and Parmessan from Italy, Cheddar from Dutch, Gryueve. US-based Philip Morris, Fromageries Bel, La Vache Kirit (Laughing cow), Happy Cow (owned by Woerle), Dabon International (Dabur & Bongrain) Dairy *whiteners:* Nestle, Britannia, Amul, Sapan, Vijay Mohan, Parag, Dynamix Dairy, Sterling Agro, Haryana Milk Foods, Modern Dairy, K Dairy **Features** * Mulkanoor Women's Mutually Aided Milk Producers Cooperative Union is the first women's cooperative in the country globally. * Opportunities exist for development of low-fat and sugarless milk products, paneer and cheese variants. * National Dairy Plan has been developed with a cost of Rs 17000 crore is aimed at raising milk output by 50 per cent in 10 years would be part of 12th Five year plan. It lays special emphasis on increasing productivity by adopting professional breeding practices, improving animal nutrition, animal health and vaccination. * ***Important alliances: Elbit*** India Agricultural Ventures is a part of Israeli based Elbit group, Andhra Pradesh; US based equity major has taken 25 per cent stake in Tirumala Milk Products in Andhra Pradesh.
MEAT AND MEAT PRODUCTS **Products** * Sausages, ham, bacons, kababs, meatballs, chicken yummiez, cold cuts, breaded and coated snacks, marinated snacks, chicken nuggets, canned chicken curry, freeze dried chicken pulao, meat soup, powder omlette and scrambled egg mixtures, sandwich, pizza, burger and dial-a-chicken and fast food giants, Kentucky Fried Chicken (KFC), McDonald's, Wimpy, Pizza Hut **Lead Players** * Venkateshwara hatcheries, Godrej Agrovet, Vista processed food, Al Kabeer, Allanasons, etc., **Poultry** * Venkateshwara group, Pune; Saguna poultry farms ltd; Pioneer poultry group, Coimbatore; Godrej Agrovet India, Sky Lark Group, Jafa Com feed	

(Contd.)

Appendix V. (Contd.)

Features	
* 3600 slaughter houses, 9 modern abattoirs, and 171 meat processing plants	**BAKERY**
* Poultry: 70 per cent is under organised sector; 8 integrated poultry processing units in the country have significant share	**Products** * Biscuits and bread, Pastries, buns, cakes, rusks, others **Lead Players** * Nabisco, Arnotts, United biscuits, Brittania Denone France, Parle biscuits, Bakeman's Glaxo SmithKline, Priya Food
* Vertical integration of poultry production and marketing has lowered cost of production, marketing margin, consumer prices of poultry meat	**Features** * Small scale (50,000 small and medium sized producers); 15 units in organised units
* Poultry meat export is negligible due to high cost, inadequate meat processing facilities, and infrastructure bottlenecks	* Parle 2nd largest producer of biscuits in organised sector
* Large investment is needed in cold storage, modern meat processing plant, etc.	* ***Important alliances:*** Nestle has taken over joint venture Dabur-Excelsia; Britannia has tie up with Danone of France which is one of the largest processed food producers of Europe and 7th largest player globally
* Growing number of fast food chains has significant impact on meat processing industry	
CONFECTIONERY Product	**FRUIT BEVERAGES Product**
* Sugar boiled confectionery, hard boiled candies, toffees and other sugar-based candies	* Real fruit drinks and synthetic drinks
Lead players	**Lead players**
* Maha Lacto, Aashay, Coca Naka, Dishum, Honey Fab, Eclairs, Parrys' Lief, Finland, Nutrine, Ravalgaon, Candico (India) Curt Georgi UK, Cadbury, P&G Hygiene, Warner Lambert, Nestle	* Vadilal, Jumpin, Kissan, Real, Onjus, Kool Kokum, Frooti, Appy, Joly Jely, Yo Fruity, Noga, Midland, Goldcoin, Druk, Tropicana.
* In chewing gum-Perfetti, Warner Lambert, & Wrigley's	**Features**
Features	* There has been a steady rise in the capacity, production and capacity utilisation in the fruit processing units.
* Hard boiled candy is reserved for small scale sector; To overcome the reservation mode the big players have used a mix of franchise arrangement (with small units) and product formulations	* Indian life style has a predilection for fresh fruits and vegetables or those processed at home; Consumption per capita of juices in India is very low.
* Sugar boiled confectioneries(plain, hard boiled candies, toffies, eclairs, rgums) is under organised sector	* Enkay is the largest Indian exporter of fruit juices, pulp and concentrates to Europe and North America
* The growth of the industry is attributed to mergers and acquisitions or joint development efforts; and to rising incomes and affordability in many of the developing markets	* PepsiCo International is planning to make India a regional sourcing hub for fruit juice concentrates and pulp.
* Key growth opportunities for the industry are gum, chocolate and cereal bars.	**WINE AND BEER, ALCOHOLIC BEVERAGES**
* Growing health consciousness among consumers has led to development of confectionery in low-fat, low sugar, version; and products that are free of artificial colours, flavours and additives.	**Products** * Country liquor and Indian made foreign liquor **Lead Players**
* The rising inflation, food prices, inputs like sugar and packaging material made of petroleum products has an impact on the confectionery industry.	* United Breweries, Mohan Meakins and Radico Khaitan, Stroh Brewing Co of the US and Henninger Brau AG of Germany

(Contd.)

Appendix V. (Concld.)

* Important alliances: Parry's confectionery was bought by Korea's Lotte India; Godrej Foods & Beverages Ltd. acquired Nutrine Confectionery Company Pvt Ltd and later formed joint venture company with Hershey Company forming Godrej Hershey Foods & Beverage Ltd.

EDIBLE OILS

Products

* Vegetable refined oil, hydrogenated oil, bakery fats/margarine, and de-oiled cakes.

Lead Players

* National Dairy Development Board; ITC Agro; Marico Industries; Ahmadabad Mills
* Vanaspati: Hindustan Lever; Wipro; Rasoi; Avi Industries.

Features

* The Indian edible oil industry consists of ghanis, small scale expellers, solvent extractors, oil refiners and vanaspati manufacturers. The ghanis belong to the SSI sectors, while solvent extractors belong to the organized segment. They use modern technology to process low oil & high meal seeds (i.e., soybean, cottonseed) into edible oil and de-oiled cake. The organized sector is the fastest growing sector due to consumer preference for non traditional oils such as soybean and sunflower oil.
* ***Factors for future growth:*** Focus on improving yields, getting better quality oilseed, ensuring regular supplies-through symbiotic relationship with farmer; and branding building
* ***Factors affecting growth:*** Free imports, low import duties and slump in global prices are leading to dumping; low realization and idle capacities of industries; production slippages; shift to more remunerative crops by farmers; Increasing health awareness among consumers of impact of oils and vanaspati on individuals

Features

* There are 12 joint venture companies and about 60 breweries
* The growth of domestic wines has been helped by tariff protection (high custom duties and excise rates)
* Maharashtra has emerged as major wine manufacturing state. The industry is reeling under debt and has sought Rs 100 crore package of interest subvention at 4% and debt restructuring of the small-size wineries and grape growers.
* **Important alliances:** Fosters Brewing group of Australia and South African Breweries have either set up subsidiaries or have gone in for tie-ups; Haake Beck, entered India through a technical tie-up between Brauerel Beck of Germany and Indian Him Neel Breweries, United Breweries group acquired 65 % stake in the Mumbai based Associated Breweries & Distilleries (ABD); producers of London Pilsner beer; South African Breweries (SAB) has taken over Narang Industry's brewery in UP.

CHOCOLATES

Products

* Chocolate, Chocolate bars, Chocolate based drinks

Lead Players

* Cadbury India, Nestle, Amul and Campco, KJS India (subsidiary of Philip Morris's)

Appendix VI. Government Policies to Promote Food Processing Industry

A. Policy support to food processing industries

Regulation and control

* Most of the processed food items have been exempted from the purview of licensing under the Industries, Development, Regulation, Act, 1951, except items reserved for small-scale sector and alcoholic beverages
* Licensing is needed for Beer, potable alcohol and wines, cane sugar, hydrogenated animal fats and oils, etc.,
* Items of SSI sector: Pickles and chutneys, bead, confectionery, excluding chocolate, toffees and chewing-gum, etc., rapeseed and mustard, sesame and groundnut oil (except solvent extracted), ground and processed spices other than spice oil and oleoresins, sweetened cashew nut products, tapioca sago and tapioca flour.
* Foreign Direct Investment up to 100% is permitted under the automatic route in the food infrastructure like Food park, Cold Chain and Warehousing; FDI in retail is not permitted except Single Brand Product Retailing; FDI up to 100% is permitted on the automatic route for distillation and brewing of alcohol subject to licensing by appropriate authority.
* Monopolies and Restrictive Trade Practices rules and Foreign Exchange Regulation Act regulations have been relaxed and the industry given more freedom in order to encourage investment and expansion by large corporates.
* Most of the items can be freely imported and exported except for items in the negative lists for imports and exports. Capital goods are also freely importable, including second hand ones in the food processing sector

Fiscal policy and taxation

* Customs duty rates have been substantially reduced on food processing plant and equipments, on raw materials and intermediates, especially for export production.
* Excise and import duty rates have been reduced substantially.
* Corporate taxes have been reduced and there is a shift towards market related interest rates. There are tax incentives for new manufacturing units for certain years, except for industries like beer, wine, aerated water using flavouring concentrated, confectionery, chocolates, etc.
* Repatriation of profits is freely permitted in many industries except for some, where there is an additional requirement of balancing the dividend payments through export earning.

Export promotion

* Free trade zones (FTZ) and Export processing zones (EPZ) have been set up with all infrastructures. Setting up of 100% export oriented units is encouraged in other areas. They may import free of duty all types of goods, including capital goods.
* Capital goods, including spares up to 20% of the c.i.f. value of capital goods may be imported at a concessional rate of customs duty subject to certain export obligations under the Export Promotion Credit Guarantee schemes.

B. Fiscal incentives for food processing industry

Excise duty rates:

* Excise duty is abolished for condensed milk, ice cream, preparations of meat, fish and poultry, pectins and Pectates, used as a gelling agent in jams and jellies, pasta and yeast; biscuits (with retail sale price less than Rs 100 per kg); and all kinds of food mixes including instant food mixes
* Reduced to 8% for ready to eat packaged food; Meat, fish and poultry products; and Reefer vans and to 16% for aerated food drinks

Customs duty rates

* Reduced to 5% for food processing machinery and their parts, packaging machines and to 10% on refrigerated vans.

Income tax relief

* Up to 100% of profits for 5 years and 25% of profits for the next 5 years, for new industries to process, preserve and package fruits and vegetables

Source: http://mofpi.nic.in

Appendix VIIa. Progress of Reforms in Agricultural Markets (APMC Act) (as on 31 Sept 2011)

Sl. No.	Stage of reforms	Name of State/ Union territory
(1)	(2)	(3)
1.	Reforms to the APMC Act have been done for Direct Marketing; Contract Farming and Markets in Private/Coop. Sectors.	Andhra Pradesh, Arunachal Pradesh, Assam, Chhattisgarh, Goa, Gujarat, Himachal Pradesh, Jharkhand, Karnataka, Maharashtra, Mizoram, Nagaland, Orissa, Rajasthan, Sikkim, Uttarakhand and Tripura
2.	Reforms to APMC Act have been done Partially	(a) Direct Marketing: NCT of Delhi, Madhya Pradesh (b) Contract Farming: Haryana, Punjab and Chandigarh, Madhya Pradesh (c) Private Markets: Punjab and Chandigarh
3.	There is no APMC Act and hence not requiring reforms	Bihar*, Kerala, Manipur, Andaman & Nicobar Islands, Dadra & Nagar Haveli, Daman & Diu, and Lakshadweep
4.	The APMC Act already provides for reforms	Tamil Nadu
5.	Administrative action has been initiated for the reforms	Meghalaya, Haryana, J&K, Uttarakhand, West Bengal, Pondicherry, NCT of Delhi and Uttar Pradesh

(Economic Survey, 2011-12)

* a

Appendix VIIb. Provision of Model APMC Act and the Status of Reforms

States which have adopted the suggested provisions	States which have not adopted it
1. Initiative for setting up of new market by any person, local authority or grower	
CH, GO, MP, NA, SI, TR	AP, AR, AS, GU, HP, KA, MH, OR, PB/CN, RJ, TN, UP
2. *Provisions for setting up of special market and special commodity market*	
AP, GU, MH, NA, SI, TN, TR, UP	AR, AS, CH, GO, HP, KA, MP, OR, PB/CN, RJ
3. *Set up and promote public and private partnership in management of the agricultural markets*	
AP, HP, KA, NA, SI	AR, AS, CH, GO, GU, MP, MH, OR, PB/CN, RJ, TN, TR, UP
4. *To promote Public Private Partnership in Extension activities of Market Committee*	
AP, HP, KA, NA, SI	AR, AS, CH, GO, GU, MP, MH, OR, PB/CN, RJ, TN, TR, UP
5. *To promote and encourage e-trading, market committee may establish regulatory system/ create infrastructure and undertake other activities and steps needed thereto*	
GU, HP, KA, NA, PB/CN, SI, UP AP, AR, AS, CH, GO (only defined), MP, MH, OR, RJ, TN, TR	
6. *Secretary to be Chief Executive of Market Committee. CEO shall be appointed by the market committee from the panel maintained by Director/Board which may include professionals from open market*	
NA, SI	AP, AR, AS, CH, GO, GU, HP, KA, MP, MH, OR, PB/CN, RJ, TN, TR, UP
7. *Contract farming sponsor shall register himself with the Market Committee or with a prescribed officer in such a manner as may be prescribed*	
AP, AR, AS, GO, HP, KA, MH, NA, OR, RJ, SI, TR, UP	CH, GU, MP, PB/CN, TN
8. *The contract farming sponsor shall get the contract farming agreement recorded with the prescribed officer*	
AP, AR, AS, CH, GO, GU, KA, MP, MH, NA, OR, RJ, SI, TR, UP	HP, PB/CN, TN

(Contd.)

Appendix VIIb. ***(Concld.)***

9.	*No title, rights, ownership or possession shall be transferred or alienated or vest in the contract farming sponsor or his successor or his agent as a consequence arising out of the contract farming agreement*	
	AR, AS, GO, MH, NA, OR, RJ, SI, TR, UP	AP, CH, GU, HP, KA, MP, PB/CN, TN
10.	*Dispute settlement mechanism*	
	AP, AR, AS, CH, GO, GU, KA, MP, MH, NA, OR, RJ, SI, TR, UP	HP, PB/CN, TN
11.	*Exemption of market fee on the sales to the contract farming sponsor taking place outside the market yard under the contract farming agreement*	
	AR, GO, HP, KA(fee reduced by 30%), MH, NA, OR, PB/CN (fee exempted under the rules), RJ, SI, TR	AP, AS, CH, GU, MP, HP, TN, UP
12.	*Specification of model agreement for contract farming*	
	CH, GO(as may be prescribed), GU, KA(as may be prescribed), MP, MH(Rules), NA, RJ, SI, TR, UP(as may be prescribed)	AP, AR, AS, HP, OR, PB/CN, TN
13.	*Market fee shall not be levied for the second time in any market area of the state by market committee; Market fee not to be levied more than once in commercial transactions between traders or to consumers*	
	CH, GO, HP, MP, NA, PB/CN, SI	AP, AR, AS, GU, KA, MH, OR, RJ, TN, TR, UP
14.	*Registration (not licensing) of market functionaries and single registration for trade/ transaction in more than one market*	
	AS, CH, GO, H.P., MH, NA, SI	A.P., AR, GU, KA, MP, OR, PB/CN, RJ, TN, TR, U P
15.	*No commission agent shall act on behalf of agriculturist seller and no deduction to be made towards commission*	
	CH, NA, SI	AP, AR, AS, GO, GU, HP, KA, MP, MH, OR, PB/CN, RJ, TN, TR, UP
16.	*Establishment of private market yard and direct purchase from farmers*	
	AP, AR, AS, GO, GU, HP, KA, MP, (can be done, under the bye-laws), MH, NA, OR (excluding for paddy/ rice), PB/CN, (not for direct purchase), RJ, SI, TR, UP CH, TN	
17.	*Establishment of consumer/ farmer market*	
	AR, AS, GO, GU, HP, KA, MH, MP (can be done under the bye-laws), NA, PB/CN (only enabling provision), RAJ, SI, TR, UP	AP, CH, OR, TN, (being set up under executive order)
18.	*Power to grant exemption from market fee by the state government*	
	AP, CH, GO, GU, MP, MH, NA, SI	AR, AS, HP, KA, OR, PB/CN, RJ, TN, TR, UP
19.	*Setting up of separate market extension cell in the Board Establishment of State Agricultural Produce Marketing Standard Bureau*	
	NA, SI	AP, AR, AS, CH, GO, GU, HP, KA, MP, MH, OR, PB/CN, RJ, TN, TR, UP

Note: AP-Andhra Pradesh, AR-Arunachal Pradesh, AS-Assam, CH-Chhattisgarh, CN-Union Territory of Chandigarh, GO-Goa, GU-Gujarat, HP-Himachal Pradesh, KA-Karnataka, MP-Madhya Pradesh, MH-Maharashtra, OR-Orissa, PB-Punjab, RJ-Rajasthan, TN-Tamil Nadu, TR-Tripura, UP-Uttar Pradesh, NA-Nagaland, SI-Sikkim
Source: Paty (2011)

NOTES

1. Definition of various terminologies on which data is compiled by Annual Survey of Industries

Fixed capital: *Represents the depreciated value of fixed assets by the factory as on the closing day of the accounting year. Fixed assets are those, which have a normal productive life of more than one year. Fixed capital includes land including lease-hold land, buildings, plant and machinery, furniture and fixtures, transport equipment, water system and roadways and other fixed assets such as hospitals, schools etc. used for the benefit of factory personnel.*

Physical working capital: *is the total inventories comprising of raw materials and components, fuels and lubricants, spares, stores and others, semi-finished goods and finished goods as on the closing day of he accounting year. However, it does not include the stock of the materials, fuels, stores, etc. supplied by others to the factory for processing and finished goods processed by the factory from raw materials supplied by others.*

Working capital: *is the sum total of the physical working capital as already defined above and the cash deposits in hand and at bank and he net balance receivable over amounts payable at the end of the accounting year. Working capital, however, excludes unused overdraft facility, fixed deposits irrespective of duration, advances for acquisition of fixed assets, loans and advances by proprietors and partners irrespective of their purpose and duration, long-term including interest thereon and investments.*

Productive Capital: *is the total of fixed capital and working capital as defined above.*

Invested capital: *is the total of fixed capital and physical working capital as defined above.*

Outstanding loans: *represents all loans whether short term or long term, whether interest bearing or not, outstanding according to the books of the factory as on the closing day of the accounting year.*

Rent paid: *represents the amount of royalty paid in the nature of rent for the use of the fixed assets in the factory.*

Interest paid: *includes all interest paid on factory account on loans, whether short term or long term, irrespective of the duration and the nature of agency from which the loan was taken. Interest paid to partners and proprietors or capital or loan are excluded.*

Workers: *are defined to include all persons employed directly or through any agency whether for wages or not and engaged in any manufacturing process or in cleaning any part of the machinery or premises used for manufacturing process or in any other kind of work incidental to or connected with the manufacturing process. Labour engaged, in the repair and maintenance or production of fixed assets for factory's own use or labour employed for generating electricity or production coal, gas etc. are included.*

Employees: *include all workers defined above and persons receiving wages and holding supervisory or managerial positions engaged in administrative office, store keeping section and welfare section, sales department as also those engaged in purchase of raw materials etc. or purchase of fixed assets for the factory and watch and ward staff.*

Total persons engaged: *include the employees as defined above and all working proprietors and their family members of the co-operative societies who worked in or for the factory in any direct and productive capacity. The number of workers or employees is an average number obtained by dividing mandays worked by the number of days the factory had worked during the reference year.*

Mandays: *represent the total number of days worked and the number of days paid for during the accounting year. It is obtained by summing-up the number of persons of specified categories attending in each shift over all the shifts worked on all days.*

Wages and salaries: *are defined to include all remuneration in monetary terms and also payable more or less regularly in each pay period to workers as compensation for work done during the accounting year. It includes (a) direct wages and salary (i.e., basic wages/salaries, payment of overtime, dearness, compensatory, house rent and other allowances); (b) remuneration for the period not worked (i.e., basic wages, salaries and allowances payable for leave period, paid from sources other than employers); (c) bonus and ex-gratia payment paid both at regular and less frequent intervals (i.e., incentive bonuses, productive bonuses, profit sharing bonus, festival or year-end bonuses etc.). It includes lay off payments which are made from trust or other special funds set up exclusively for this purpose i.e., payments not made by the employer. It also excludes imputed value of benefits in kind, employer's contribution to old age benefits and other social security charges, direct expenditure on maternity benefits crhches and other group benefits. Travelling and other expenditure incurred for business and reimbursed by the employer are excluded. The wages are expressed in terms of gross value, i.e., before deduction for fines, damages, taxes, provident fund, employee's state insurance contribution etc.*

Old age benefits: *include employer's contribution towards provident fund, pension, gratuity, etc.*

Social security benefits: *include employer's contribution towards social security charges such as employee's state insurance, compensation for work injuries and occupational diseases, provident fund-linked insurance, retrenchment and lay off benefits.*

Other benefits: *include group benefits like direct expenditure on maternity, crhches, canteen facilities, educational, cultural recreational facilities, and grants to trade unions, co-operative stores etc. meant for employees.*

Total emoluments: *is defined as the sum of wages and salaries and employer's contribution towards old age benefits and other benefits.*

Fuels consumed: *represents total purchase value of all items of fuels such as coal, liquefied petroleum gas, petrol, diesel, electricity, lubricants, water, etc. consumed by the factory during the accounting year but excluding the items which directly enter into the manufacturing process.*

Materials consumed: *represents the total delivered value of all items of raw materials, components, chemicals, packing materials and stores which actually enter into the production process of the factory during the accounting year. It also includes the cost of all materials used for the construction of building etc. for the factory's own use. It, however, excludes all intermediate products consumed during the accounting year. Intermediate products are those product, which are produced by the factory but are subject to further manufacturing.*

Ex-factory value of products: *and by-products manufactured is attained at the rate of net sale-value which is obtained by deducting sale-tax, excise duties and other distributive expenses from actual sale-value (inclusive of subsidies etc.) with respect to each of the items.*

Total input: *comprises total value of fuels, materials consumed as well as expenditures such as cost of contract and commission work done by others on materials supplied by the factory, cost of materials consumed for repair and maintenance work done by others to the factory's fixed assets, inward freight and transport charges, rate and taxes (excluding income tax), postage, telephone and telex expenses, insurance charges, banking charges, cost of printing and stationery and purchase value of goods sold in the same condition as purchased.*

Total output: *comprises total ex-factory value of products and by-products manufactured as well as other receipts from non industrial services rendered to others, work done for others on material supplied by them, value of electricity produced and sold, sale value of goods sold in the same condition as purchased, addition in stock of semi-finished goods and en construction.*

Depreciation: *is consumption of fixed capital due to wear and tear and obsolescence during the accounting year and is taken as provided by the factory owner or is estimated on the basis of cost of installation and working life of the fixed assets.*

Net value added: *is arrived by deducting total input and depreciation from total output.*

Semi-finished goods: *refer to the imputed value of all materials which have been partially processed by the factory but which are not usually sold without further processing. It includes the work in progress for materials supplied by others, but excludes the value of semi-finished fixed assets produced for factor's own use.*

Finished goods: *of the factory are the ultimate products ready for sale. It does not require further processing but includes packaging and labeling etc.*

Net income: *is obtained by deducting the rent paid and interest paid from the value added.*

Profit: *is the excess of net income over the total emoluments of all employees.*

Net fixed capital formation: *represents the net addition of fixed capital at the end of accounting year over that at the beginning of the year.*

Gross fixed capital formation: *is obtained by adding depreciation to net fixed capital formation.*

Gross capital formation: *is obtained by adding total addition in stocks of material, fuel, semi-finished gods to gross fixed capital formation.*

(Source: Annual Survey of Industries, 2007-0, Ministry of Programme Implementation and Planning, Government of India)

2. The tainted milk scam of China has claimed four lives and has sickened 54000 infants. The milk formula was laced with toxic chemicals melamine used to make plastics and fertilizers that can cause kidney stones and lead to kidney failure. The melamine was found in samples of liquid milk taken from 22 chinese companies-including the country's two largest dairy producers, Mengniu Dairy Group Co. and Yili Industrial Group Co. - and had prompted nationwide recalls of milk and dairy products

(Source:. http://www.foxnews.com/story/0,2933,426665,00.html#ixzz1fvPyE6BL)

DOCUMENTATION

The purpose of this section is to make available to the readers official documents such as reports of committees, commissions, working groups, task forces, etc., appointed by various ministries, departments, agencies of central and state governments and international organisations, which are not readily accessible either because they are old, or because of the usual problems of acquiring governmental publications, or because they were printed but not published, or because they were not printed and remained in mimeographed form. We also present in this section, official documents compiled from scattered electronic and/or other sources for ready reference of the readers. It will be difficult and probably not worthwhile to publish the documents entirely. We shall publish only such parts of them as we think will interest our readers. The readers are requested to send their suggestions regarding official documents or parts thereof for inclusion in this section.

We are also keen to publish Papers, Notes or Comments based on the material included in this section. We invite the readers to contribute the same to our journal, which we shall consider for publication in subsequent issues of the journal, after the usual refereeing process.

In the present section, we publish:

1. Editor's Note on the Documentation on the Deccan Riots Commission

2. East India (Deccan Riots Commission), Report of the Commission Appointed in India (The Causes of the Riots which took place in the year 1875, in the Poona and Ahmednagar Districts of the Bombay Presidency.)

3. Indo-Sri Lanka Free Trade Agreement, Free Trade Agreement between the Republic of India and the Democratic Socialist Republic of Sri Lanka.

EDITOR'S NOTE ON THE DOCUMENTATION ON THE DECCAN RIOTS COMMISSION

It is a pleasure to be able to include with this issue the text of the report of the East India (Deccan Riots Commission) being the report of the Commission appointed in India to inquire into the causes of the riots which took place in the year 1875 in a number of villages in the Poona and Ahmednagar districts of the Bombay Presidency. This is one of the rare reports which attempts to analyse meticulously the various factors responsible for accumulation of heavy indebtedness among the farmers in the above two districts of the Deccan which led to widespread riots by the farmers against the Marwari money lenders in the two districts. The riots were largely in the nature of the farmers forcibly seizing the bonds and decrees from the money lenders and destroying them, greater violence was resorted to where there was resistance from the money lenders to this.

The report reflects in great detail the conditions of the farmers in these districts, village by village.

At the outset, the Report highlights the physical geography and soil conditions, rainfall, population densities, draught cattle population, average yields of jowari and bajri and its monetary values in soils of different types and land revenue per culturable acre in the villages in riot-affected districts, compares the conditions of these districts with conditions which prevailed in these districts at the time of the downfall of Mahratta power, in the early and recent periods of the British rule and with contemporary Guzerat, where agricultural conditions were far better.

The Report then analyses the causes leading to accumulation of debts among the peasants in Deccan, the extent of the peasants' indebtedness, the causes of hostility between the peasants and the money lenders, the immediate causes of the riots and discusses the recommended remedies.

Among the causes leading to accumulation of the farmers' debts the Report considers the very low standard of productiveness with concentration of cultivation on only two crops, namely, jowari and bajri and facing capricious weather with one good year in three years and and consequently a large poor population of the region as naturally an important reason for heavy indebtedness. Contradicting the general perception about improvidence being a major cause of indebtedness, the Report says: "The constantly recurring small items of debt for food and other necessaries, for seed, for bullocks, for the Government assessment, do more to swell the indebtedness of a ryot than an occasional marriage." The chief cause of the existing level of the indebtedness of the ryot is identified to be ancestral debt. Another major cause adding to the burden of farmers' debts was the Law of Limitation, 1859, which limited the period of limitation of bonds to three years but had the perverse effect of re-issuing of bonds of higher value to include compound interest, often at usurious rates, after each two years. Heavy demands of fixed land revenue even in bad seasons often forced the farmers to borrow heavily from the money lender. Finally, as a consequence of the boom caused by the American Civil War from 1862 to 1865, "Through the immense stimulus given to the production of cotton and cheapness of money, agricultural produce and land ad attained an extravagant value, and the ryot's powers as a borrower were those of a capitalist rather that a labourer" and swelled the debts, only to become onerous burdens in later years when after the end of the American Civil War, prices collapsed. In the years which followed, the ryots' economic condition severely worsened due to failure of crops in 1871, reduced availability of supplementary work and lowering of wages due to completion of railway construction work after 1871 and a steep slowing down of expenditure on irrigation and public works, and substantially enhanced assessment for land revenue after the revision of the rates in the revised settlements during the period from 1869 to 1872. The Report

presents data on the value of sales of, and mortgage claims on, farmers' lands in the riot affected Talukas during these years preceding the year of riots. These are indicative of the extent of indebtedness of the farmers.

Soon after the advent of the East India company rule in the Deccan, the first regular procedure for civil justice was introduced in 1827. It provided for exemption from seizure of the cattle and agricultural implements and for limitation of the rate of interest recoverable in a Civil Court to 12 per cent per annum. The ceiling on the rate of interest did not provide any relief to the borrowers as the lenders kept the effective rates of interest on debts, which were mostly on personal security, anywhere between 25 to 60 per cent, by deducting the interest in advance or by compounding the interest every time (say, once every two years after the Law of Limitation was passed) when the bond was renewed. The lenders, on the other hand, got the advantage of speedy realization of loans by approaching the courts. In 1859, the Civil Procedure Code and the Statute of Limitations were enacted. After that, the Court process, threats of imprisonment, decrees for attachment of the peasant's property (even future property), frequent renewal of bonds, not to mention fraudulent accounts, lack of proper issuance of receipts for repayment, ex parte and uncontested court cases and the out of court settlements came to be extensively used by the money lenders to achieve large-scale transfer of ownership of lands and issuance of labour bonds. The report provides great detail about how the various provisions of Acts and court procedures were misused.

The report discusses remedies for mitigating the causes which lead to accumulation of indebtedness among peasants and to mitigate the consequences of the indebtedness. Expansion of irrigation to improve the productivity of agriculture and reduce farmers' poverty and spread of education to remove their ignorance are obvious remedies necessary for mitigating farmers' debts and increase in them. The Commission recognizes that introducing a system of adjusting revenue assessment to the quantity and timeliness of rainfall in these drought-stricken districts would reduce the ryots' embarrassment without being open to the objection of uncertainty, but also emhasises that any time the assessment has to be enhanced by more than 25 per cent, the increase must be imposed gradually. This is a principle of wider applicability. The Commission carefully analyses the defects in the existing laws and gives two Draft Bills, one for prevention of frauds and the other for addressing the hardships incurred by the debtor through the excessive powers given to the decree holder. The former provides for appointment of public notaries, whose duty it will be to write and register bonds and other instruments and to penalize writing of instruments by unlicensed persons. It also provided for enforcing of delivery of receipts and accounts and introduction of passbooks with writing of debtor's accounts in them and penalty and magistrate's jurisdiction to the withholding of receipt for any payment and to the withholding of accounts and passbooks. The second Draft Bill recommended sought to relieve the debtors of the excessive powers of the then existing law for recovery of debt. It included abolition of the provision of imprisonment for debt, exemption of necessaries like small residential quarters from sale for recovery of debt, provisions avoiding sale of all movable property and all unnecessary sale of immovable property by substituting such sales by sales of claims on profits fro the land for future twenty years and if such profits are inadequate to meet the creditor's claims then to secure for the debtor the full value of such immovable property as may be necessary to be sold, provisions for avoiding the pressure of court process to be abused for extorting excessive amounts from the debtors, provisions to make decrees, once issued, to bring about full and final settlement of debt and not to be misused as a basis for creation of new bonds and new decrees, and provisions to prevent decrees from becoming a claim against

property acquired after wards. The discussion gives a clear idea of the careful thought which was given to amend the law to rid it of the oppressive powers given for debt recovery without making the debt recovery process ineffective.

The report contains a detailed discussion as to whether the revision of land revenue assessment imposed rigid and undue burden on the farmer resulting in swelling their debts and causing embarrassment to them which ultimately culminated in the outbreak of riots. To make this evaluation objectively and comprehensively, the report examines in great detail all available information and statistics about changes over time in the land under cultivation and uncultivated land, amounts of collections of land revenue, remissions in land revenue which had to be given from time to time in bad seasons, the beneficial effects on the cultivators' fortunes of the rising prices of agricultural produce and the adverse effects of falling prices of this produce, the improvements in agricultural production and marketing conditions due to expansion of irrigation, road and railway network, changing fortunes of farmers in different talukas as the changing road and railway network influenced their relative position in regard to access to markets, effects of increase in population and the possible effects of heavy assessment and oppressive laws on emigration of population from the British Dominion to the Princely states and *vice versa.* The report develops a detailed nine-fold classification of soils to form a systematic basis for revised assessment of land revenue so as to correct the relatively heavier burden of assessment on the poorer soil classes in the earlier settlement.

To evaluate the changing burden of assessment over time due to changing assessment rates and the level of prices, the report presents a table by way of illustration, giving the percentage which the mean assessment rate per acre shows to the value of produce per acre. The mean rate of realization of land revenue were about two thirds of the assessment rates, but "during this period the people paid large sums, in addition to revenue realizations, as direct "haks" and in all sorts of illicit exactions". The calculations have been made on the basis of an assumed average yield of 5 maunds of jowari per acre. By comparison, the average yields of jowari per acre in the region (reported elsewhere in the report) for poor soil is 1 maund per acre, that for middling soil 3 maunds per acre and that for good soil 7 maunds per acre. So, the burden of assessment would be so much the greater for land with poorer soils. The percentage of mean rate of assessment per acre to the value of produce per acre was extremely high at over 22 per cent per year during 1830-1836 when the price of jowari in Indapur Taluka was very low at 43 seers to a Rupee.[1] With the lowering of the mean assessment rate to about half the earlier level with the first Survey Settlement in 1836 and the further effective lowering of it somewhat in 1857-1860 owing to the cultivation of un-assessed land, the percentage burden of assessment went down to the lowest level of just over 4 per cent during the years of American Civil War when the price of jowari in Indapur Taluka was as high as only 18 seers to a Rupee. "The result was an enormous extension of cultivation, the cultivated area increasing in these eight talukas alone by more than 700,000 acres during the term of the settlement from less than 1,094,000 acres to 1,805,000. And an actual and very considerable increase of revenue also resulted, realizations at the end of the term of the original settlement [1866] being Rs. 7, 70,000 against about (I have not the exact figures) Rs. 6, 50,000 during the third period I have taken [1830-36]." With the revision of assessment rates after 1866, when the prices continued to remain equally elevated, the percentage burden of assessment increased to a little over 6 per cent.

1. Seer and maund are old Indian weights, one seer equals 0.93310 kg and one maund equals 40 seers or 37.324 kg.

But with the collapse of the price of jowari in 1874 to 50 seers per Rupee and with the continuation of the revised rates of assessment, the same percentage rose to the very high level of 18.4 per cent, nearly equaling the level during 1830-36 "when assessments were notoriously oppressively heavy, and the country in a most depressed state".

As one would see, all this discussion has made the report a source of rich information about the changing economic conditions of the countryside over the seven decades from the advent of the East India company rule to the year of the report. The value of the report as a documentary on the economic history of the period can hardly be over-stated. In addition, in this context, the report reflects the economic thinking of the time about Ricardian theory of rent and its application to land revenue assessment as well as about the role of international trade, home charges and specie flow in governing prices of agricultural produce within the framework of the Quantity Theory of Money. These undoubtedly make quite a fascinating reading.

Above all, however, one is greatly impressed by the deep concern for the requirements of efficient and fair administration not only of the members of the Commission but also of officials from the British administration across the whole spectrum, whose reports and submissions are quoted and examined throughout the report. The report also reflects the rich data base and the system for collecting, maintaining and reporting the same which the British administration sought to develop throughout India's countryside for the purpose. Indeed, the report refers to voluminous appendices containing these submissions and statistics, which are not included in the report as also in the present Documentation.

We have put together a print copy of this report with considerable effort. It is hoped that the readers will find it of value. It is also hoped that the documentation of the report in this volume of the journal will evoke comments from the scholars both from the point of view of economic history as also possibly from the point of view of the current rural economic scene and the current state of rural data system.

EAST INDIA (DECCAN RIOTS COMMISSION).
C O P Y
OF THE
REPORT OF THE COMMISSION APPOINTED IN INDIA

TO INQUIRE INTO
The Causes of the Riots which took place in the Year 1875, in the Poona and Ahmednagar Districts of the Bombay Presidency.

Presented to both Houses of Parliament by Command of Her Majesty
LONDON:
PRINTED BY GEORGE EDWARD EYRE AND WILLIAM SPOTTISWOODE, PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY FOR HER MAJESTY'S STATIONERY OFFICE
1878

To the Acting Chief Secretary to Government, Bombay

Sir,

We have the honour to submit our Report on the subject of the Riots in the Poona and Ahmednagar Districts; and the causes underlying the outbreak

2. The Commission as a first constituted, consisted of Messrs Richey and Lyon, Bombay C.S.; Mr. A. Colvin, Bengal C. S.; and Rao Bahadur Shumbooprasad Luxmeelal. In the month of November, Mr. Carpenter, Bengal C. S., was deputed by the Government of India in the place of Mr. A. Colvin, whose services were required in the North-west Provinces.

3. We have personally held inquiry in the disturbed districts, and recorded the statements of ryots and sowkars, and compiled the evidence obtained on the spot, showing the nature of the relations of the money-lending and agricultural classes. We have also examined the records of the Revenue, Judicial, Registration, and Police Departments throwing light on the economic condition of the agricultural class and, their relation to the money-lending classes, and the consequences of that relation. We have collected and, read-

1st - Previously recorded reports, minutes, letters, & c by authorities, and officials who have discussed the subject of the indebtedness of the agricultural and land holding classes in India, and suggested remedies for the alleged mischief arising from this indebtedness.

2nd - The legal and judicial record showing how the relations of the agricultural debtor and his creditor have been affected by the law, the procedure and the practice of the Courts of Justice, discussions and debates on the enactments and provisions of the law dealing with those relations.

We have consulted officers of local experience on the points which came before us in our inquiry, and have been favoured by Judicial Officers with opinions on questions referred to them.

4. We desire to record our strong sense of the value of Mr A. Colvin's services in the work of the Commission during the two months in which he sat as a member. We have received his permission to submit to Government a memorandum written by him before his departure, many of the conclusions in which coincide with those submitted in our Report.

5. We desire also to record out acknowledgments of the valuable assistance received from the many officers from whom we have sought information and help.

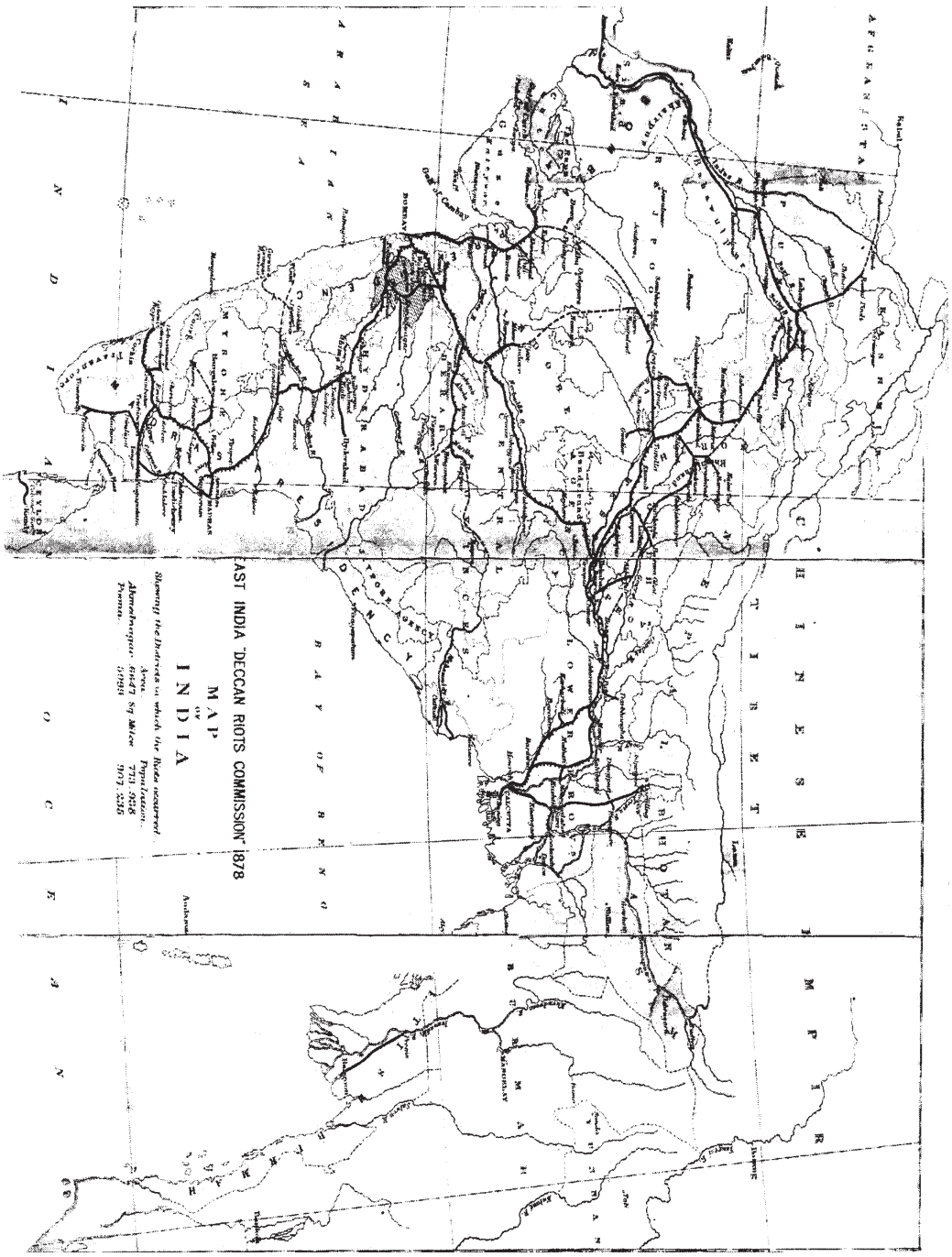
6. On the question to which our attention was called by the Government of India, viz., the connection of the revision of assessment with the riots, the concurrent opinion of the Commission is shown in the report. Two members are of opinion that the enhanced settlement was more directly connected with the outbreak than is indicated in the conclusions recorded in the Report. On this subject, therefore, separate notes and accompaniments are submitted.

7. Mr. Shumbooprasad Luxmeelal also desires to submit a separate note on some points regarding which the conclusions in the Repot do not go so far as he would wish.

We have the honour to be
Sir,
Your obedient Servants
J.B. RICHEY,
A. LYON,
SHUMBOOPRASASD LUXMEELAL.

P.S. - The undersigned is able to record the full concurrence in the report of Mr, Carpenter, whose sudden and lamented death has prevented his name from appearing among the signatures of the Commission.

J. B. RICHEY.


EAST INDIA
DECCAN RIOTS COMMISSION
1878
MAP
OF
INDIA
Showing the Districts in which the Riots occurred
Ahmednuggur
Poona
Area
6467 Sq Miles
5984
Population
773 928
907 236
BOMBAY
MADRAS
BENGAL
HIMALAYA MTS
BAY OF BENGAL
ARABIAN SEA
INDIAN OCEAN

CONTENTS.
REPORT OF THE COMMISSION.

SUPPLEMENTARY MINUTES.

I. Opinions of Officers and Others. 291

II. The System of Revision of Assessment.

III. The Pressure of the Revised of Assessment.

IV. Reduction of Enhanced Assessment by the Government.

Miscellaneous Papers.

ERRATA*

Page 5, line 22, for 1873 to 1874 read 1870 to 1874
Page 25, para 67, for 5,5,6,7,8,9 read 5,6,7,8,9,10
[*Editor's Note: These corrections have been carried out in the Documentation in this Volume.]

NOTE. - The Appendices, which are frequently referred to and quoted throughout the following report, and in the separate Minutes of the Members of the Commission, have been omitted on account of their voluminous nature.

REPORT.
CHAPTER I.-THE RIOTS.
Premonitory Disturbances.

1. The first open indication of the spirit of hostility against the Marwari money-lender which led to the riots was shown by the inhabitants of the village of Kardeh, in the Sirur Taluka of the Poona Collectorate, at the end of 1874. A Deshmukh (district hereditary officer) of good family and some influence, who had accumulated a fortune in the service of His Highness Scindia, to whom he is related, had settled in the village, and having spent his fortune had fallen deeply in debt. Two of his creditors, Kalooram and Bhugwadas, Marwaris, got decrees against him, and Kalooram took out a warrant of arrest. The Deshmukh gave Kalooram personal ornaments, and the warrant was not executed. About four months afterwards some ornaments and property belonging to the temple of Vittoba at the Deshmukh's house were attached, but, at the instance of the villagers, Kalooram allowed the attached property to remain in deposit with a third party for two months. At the end of that term, as the Deshmukh had not paid the value of the property, it was taken possession of by Kalooram. A third execution was issued on Kalooram's decree, and the Deshmukh's houses and lands were attached and sold for a song, there being no bidders against the Marwari decree-holder. The following extract from a vernacular paper published at Poona relates the consequences of the Marwari's proceedings:-

SUBSTANCE of a LETTER published in the "Dynan Chaksu" newspaper, dated the 27th January 1875.
To the Editor of the Dynan Chaksu Newspaper.

SIR, While journeying in the districts I happened to arrive at the village of Kardeh. I put up in the village chauri where I heard a pitiful story which will appear from the following:-

"The village of Kardeh, in Taluka Sirur, originally belonged to Raste. One Baba-Saheb Deshmukh lives in this village. One of his sowkars, by a name Kalooram Marwari, obtained decrees against him from the Court at Talegaon, and in satisfaction thereof put the Deshmukh's house for sale by a public auction and purchased it himself for Rs. 150. In December 1874 the plaintiff commenced to pull down the house, when the defendant requested him not to do so, and promised to pay the debts, at his convenience. Defendant also agreed to pay rent for the house during its occupancy, but the plaintiff did not listen to his proposal and refused to put a stop to the pulling down of the house. Defendant took to heart these proceedings of the sowkar, and he collected together the village ryots and resolved that as the Marwaris have commenced to ruin them, it would be better neither to borrow from them nor to serve them or purchase anything from them in future. This unanimous resolution of the villagers put the Marwaris Sachiram, Pratap, Shivram, and one or two others to the greatest inconvenience for want of servants, &c. They therefore proposed to remove themselves to Sirur with the aid of the police by the 5th January 1875. When the Marwaris had loaded their carts with their goods and things, the villagers submitted a petition to the 'Sirkar' (Government) that as they had given grain to the Marwaris, they should not be allowed to leave the village until the Government assessment has been paid by them. How this application has been disposed of is not known to me. One of the villagers has opened a grocer's shop at which all purchases are made. Mr. Editor, if the example of these

villagers be followed everywhere, and the unanimity of the people secured, the pauperised state of our country will, I think, certainly disappear very soon. I beg you will kindly excuse me for the length of this letter, and trust that you will not fail to publish it in your journal, - A TRAVELLER."

2. The villagers who Combined against these Marwaris did not confine themselves to a passive hostility. Besides refusing service as water-carriers, barbers, household servants, & c., they subjected the Marwaris to annoyance by throwing the carcasses of dogs and other filth into their premises, and generally showed such a spirit of personal hatred that the money-lenders, on retreating to Sirur for the protection of the police at the taluka head-quarters, petitioned the magistrate, representing that they were in bodily fear of the villagers. The magistrate considered the spirit shown by the people to be of a dangerous nature, and reported it to the Police Commissioner accordingly.

3. The example set by the people of Kardeh and the neighbourhood was followed by other villages, and before any actual outbreak occurred the Marwari money-lenders had in several places been subjected to similar social outlawry and petty annoyance.

The Outbreak

4. The first actual outbreak occurred at Supa, a large village of the Bhimthari Taluka of Poona, on the 12th May 1875. The victims of the rioters were the Guzerathi sowkars, of whom there are a large number in Supa. Their houses and shops were attacked by a large mob principally recruited from the hamlets round Supa, who had assembled ostensibly to attend the market on bazar day. The houses and shops were gutted of everything that the rioters could find, and one house was burnt down, but no violence to persons was committed. The rapidity with which the example was followed through the whole area affected shows that everywhere the same influences had brought the villagers to the same readiness for resort to force. Subsequent inquiries leave no doubt that the rioters at Supa had the sympathy and countenance of some influential persons of their village, and the presence of these persons may perhaps account for the first occurrence of open violence at Supa; but the condition of the villagers through the whole affected area was such that even had Supa not taken the initiative, some other place would doubtless have done so. The combustible elements were everywhere ready; design or mistake or accident would have surely supplied the spark to ignite them.

5. Within, twenty-four hours of the riot at Supa, the leading Marwari sowkar of Kheirgaon, a village above 14 miles distant, had his fodder stacks burnt down and his house attacked with fire, and during the following days riots occurred in four other villages of Bhimthari and were threatened in seventeen more. The contagion spread to the neighbouring districts of Indápur and Purandhar, in the former of which a disturbance, which would have been serious from the number assembling, was averted, as were the riots threatened in the seventeen villages above noted, by the promptitude of the police. A detachment of native infantry having arrived at Supa, the police were relieved and available for other duty, and order was quickly restored.

6. In the meantime riots commenced in the Sirur Taluka. The first violence was committed at Navra, where a Marwari; who had left the village for safety, was mobbed and prevented from moving his property to the place whither he had himself retreated. An uncle of this Marwari had some two years previously been murdered by his debtors. Other villages of Sirur followed the example, Kardeh being one; at Damareh a Marwari had his leg broken and was saved from death by some of the rioters dragging him out of his

burning house. Altogether fifteen villages of Sirur Taluka and three of Haveli Taluka were the scene of riot or threatened disturbance. The Regiment of Poona Horse, which has its head-quarters at Sirur, supplied parties to assist the Assistant Magistrate and the police in restoring and maintaining order.

7. While these disturbances were going on in the Poona District, similar outbreaks were occurring in the neighbouring talukas of Ahmednagar, and during the fortnight following the riot at Supa on 12th May, riots took place in the talukas of Shrigonda, Párner, Nagar, and Karjat, and besides actual rioting there were numerous gatherings which were prevented from proceeding to violence by the timely arrival of police or military. A detachment of native infantry was moved to Shrigonda, and parties of the Poona Horse were active in patrolling the villages in the west within reach of their headquarters at Sirur.

The Extent of the Riots

8. In Poona disturbances more or less serious took place in five villages of Bhimthari Taluka, and six villages of Sirur Taluka.

Disturbances were threatened but averted by the arrival of the police in-

17 villages of Bhimthari
10 villages of Sirur.
1 village of Indápur.
3 villages of Haveli.

9. In Ahmednagar disturbances took place in -

6 villages of Párner Taluka.
11 villages of Shrigonda.
4 villages of Nagar Taluka.
1 village of Karjat

Disturbances were threatened in many other villages.

10. The following shows the number of persons arrested in connexion with the disturbances and the results of the trials held:-

In Poona - Persons arrested 559, of whom 301 were convicted and 258 discharged.

In Ahmednagar - Persons arrested 392, of whom 200 were convicted and 192 discharged.

11. Punitive police posts, mustering a total of 98 men, were established at the expense of the inhabitants among the disturbed villages. As was to be expected the greatest difficulty was experienced by the Magistrates in obtaining trustworthy evidence against the rioters.

12. The riot at Supa was singular in the wholesale plunder of property, and that at Damareh in the murderous assault upon the money-lenders. In a few other instances personal violence was used, and in several places stacks of produce belonging to moneylenders were burnt; but as a rule the disturbances were marked by the absence of serious crime. The object of the rioters was in every case to obtain and destroy the bonds, decrees, &c. in the possession of their creditors; when these were peaceably given up to the assembled mob there was usually nothing further done. When the money-lender refused or shut himself up, violence was used to frighten him into a surrender or to get possession of the papers. In most places the police interfered during the first stage of assembling and threatening, and so prevented violence. From many villages the Marwari sowkars fled on the first news of the outbreak. In other villages they opened negotiations with their debtors for a general, reduction of their claims, and in some cases propitiated their debtors by easy settlements. In almost every case inquired into, the riot is stated to have commenced on news arriving of bonds having been extorted in some neighbouring village, with the usual story which will be noticed hereafter - that the Government approved of the proceeding. The Marwari and

Gujur sowkars were almost exclusively the victims of the riots, and in villages where sowkars of the Brahmin and other castes shared the money lending business with Marwaris it was usual to find that the latter only were molested. There were, however, exceptions, where the leading or only sowkars were of the Brahmin caste, as in the case of the village of Ghospuri.

13. The last of the connected series of outbreaks occurred at Mundhali in Bhimthari Taluka on the 15th of June, but there were subsequently two isolated cases in Poona, which showed that the warning conveyed by the fong catalogue of convictions and punishments, and the imposition of punitive police posts, had not extinguished, but only repressed, the violent temper of the cultivators.

14. On 22nd July seven men of the village of Nimbut, Taluka Bhimthari, besides committing a robbery of documents, cut off the nose of a man who was enforcing a decree of the Civil Court which put him in possession of land belonging to one of the perpetrators of the outrage. On 28th July the villagers of Karhati, Taluka Bhimthari, broke into the house of a Marwari sowkar and took away grain which was stored there. He had refused them advances of grain, - except on terms as to the renewal of his bonds or settlement of his debts to which they were unable or unwilling to agree.

15. Beside these two cases, in the Poona, District, sequelæ as it were of the general movement, the following case must be noticed. On the 10th September in the village Kukrur, in the south-west of the Collectorate of Satara, a riotous outrage was committed in all respects similar to the serious crimes committed by the rioters of Poona and Ahmednagar. About 100 or more of the villagers attacked, plundered, and burnt the house of a leading Gujur sowkar, collected all papers and accounts which they found in the house, destroyed them, and then dispersed. The cause of the riot was declared by the rioters who were arrested to be the harsh proceedings of the sowkar against his debtors; the Magistrate in charge of the taluka reports that "news of the doings in the Poona and Nagar districts had no doubt reached all parts of the country some time ago, and probably suggested the idea to the people of Kukrur." Kukrur is more than 100 miles from the nearest part of the disturbed district in Poona.

16. In reviewing the character of the disturbances, generally, the most remarkable feature presented is the small amount of serious crime. A movement which was a direct appeal to physical force was over a large area, usually restrained within the limits of a mere demonstration; the few cases which show the vindictive spirit usually displayed in agrarian disturbances are probably to be accounted for by the presence of other elements besides the ordinary Kunbi peasantry. This moderation is in some measure to be attributed to the nature of the movement itself. It was not, so much a rebellion against the oppressor, as an attempt to accomplish a very definite and practical object, namely, the disarming of the enemy by taking his weapons (bonds and accounts), and for this purpose mere demonstration of force was usually sufficient. Another circumstance which contributed to the moderation used by the peasantry was that in many cases the movement was led or participated in by the heads of the community, the patels and others; it was doubtless an aggravation of the breach of law that those who should have maintained order in any case contributed to disturb it; but an assembly of villagers, acting with their natural leaders for a definite object, was a less dangerous body than a mob of rioters with no responsible head would have been. But the chief cause of the moderation shown is doubtless the naturally, law-abiding spirit of the Kunbi peasantry. It is so far from their natural tendency to resort to physical force that the fact of their having

done so is advanced generally by the officers of the disturbed districts as a proof of the reality of their grievances.

Instances of similar Disturbances

17. The Santhal rebellion of 1855 is, so far as we are aware, the only other instance in the history of British India of a widespread disturbance arising out of the relations of the agricultural and money-lending classes; but the police records supply numerous instances of crime as the result of those relations, which it may be convenient to notice here.

In 1845 the Bheel chief Raghoo Bhangria headed a large body of plundering Bheels, whose practice it was to cutoff the ears and noses of Marwari sowkars wherever they could find them.

The Kolis of the hill ranges between the Poona and Tanna districts have from time to time organized gangs which have employed themselves chiefly in the plunder, often in the murder and mutilation, of money-lenders. The recent doings of such a gang of outlaws will be noticed hereafter in our remarks on the causes of the riots.

In a remarkable letter of Sir G. Wingate to the Bombay Government in 1852 the following passage occurs:-

> "But though the indebtedness of the ryot is universally admitted, I am not satisfied that all its sad consequences and accompaniments are equally well understood. The Sudder Court, however, in their criminal capacity have had two recent and striking examples of the frightful pass to which the relations between debtor and creditor in agricultural villages have in some districts been brought, and the mere recalling of them to recollection, will, I apprehend, convey a more vivid conception of the evil in all its reality and hideousness than the most elaborate description. I refer to two instances of murders of village money-lenders committed in widely separate parts of our presidency. One of these occurred in the Sholapur Collectorate, where a creditor was murdered by some of his debtors, whom his oppressions had exasperated beyond the limits of endurance, in the midst of his village in broad day among a crowd of his neighbours, who apparently viewed the deed with approbation, and at all events did nothing to prevent it. The other in Guzerat, where a creditor was murdered on the high road in open day by hired assassins, at the instance of his debtors, whose sufferings at his hands will be best understood from the following remarks made by the Sadar Fouzdari Adalat in passing sentence:- 'These prisoners then, of whom two are heads of adjoining villages, have been convicted of concerting and executing a plan for the destruction of a person who was their common creditor and an object of general jealousy and hatred, as one for whose forbearance in pecuniary claims no smaller price was acceptable than the dishonour at his hands of the wives and sisters of the poor peasants who were indebted to him. "These two cases of village money-lenders, murdered by their debtors almost at opposite extremities of our presidency, must, I apprehend, be viewed not as the results of isolated instances of oppression on the part of creditors, but as examples in an aggravated form of the general relations subsisting between the class of moneylenders and our agricultural population, And if so, what an amount of dire oppression on the one hand, and of suffering on the other, do they reveal to us? What must be the state of things which can compel cultivators proverbially patient and long suffering, accustomed to more or less of ill-usage and injustice, all times, to redress their wrongs by murder and in defiance of an ignominious death to themselves? How must their sense of justice have been violated? How must, they have been bereft of all hopes of redress from law or Government before

their patient and peaceful natures could be roused to the point of desperation required for such a deed?

18. That Sir G. Wingate was right in regarding the two murder cases of 1852 not as isolated crimes, but as examples of the relations between sowkar and ryot generally, is shown by the police record of the last few years which disclose a marked increase in this class of crime - a powerful warning of the necessity for remedial measures. The information under this head given below includes the district of Kaira in Guzerat, where the Kolis are among the least civilized of the agricultural populations of Bombay, and are as regards their relations to the money-lender in a position similar to that of the Kunbis of Ahmednagar and Poona.

App. P. 1

In Kaira. - From April 1871 to July 1875 money-lenders were the victims' in the following offences :- murders 9, grievous hurt and wounding 10, arson 7, assaults 24, assault with a view to rescue property attached or taken for debts 12, theft 3; trespass by re-entry into property taken under detachment 4. There were besides 3 suicides of debtors on account of debt, and 2 cases of Traga (self-inflicted) hurt for the same reason. Total 79 offences in four years and three months.

In Ahmednagar. - From April 1871 to October 1874 money-lenders were the sufferers in the following cases:- murders 2, dacoities (including one case of mutilation) 5, housebreaking with theft of property and bonds, &c. 7, riots 3, arson 1. Total, 18 offences in three years and six months.

In Poona. - In the years 1870 to 1874 money-lenders were the sufferers in the following cases:- murder 1, robbery 7, mischief 8, theft 24, hurt 29, criminal force 8. Total, 77 offences in five years.

The police reports of the Presidency, for 1874 show two murders and four dacoities, of which money-lenders were the victims, in the districts of Ratnagiri, Satara, Sholapur, and Ahmedabad.

CHAPTER II-THE DISTRICT IN WHICH THE RIOTS TOOK PLACE.

Physical Character

19. A map is appended showing the area of the Ahmednagar and Poona, districts affected by the disturbances.* The villages mentioned in this report are marked with red.

The valley east of Poona, traversed by the Railway and watered by the Mula and Bhima rivers, is the only extensive tract of plain country in the area; the rest is distributed into level uplands, slopes and valleys, and is intersected by ranges of hills, which towards the north attain considerable elevation. The following extracts from the report of the Superintendent of the Ahmednagar Survey, Colonel G. S. Anderson, give the leading features of the western portion of the disturbed district north of the Bhima River, the greater portion of which was formerly comprised in the Kardeh Taluka of Ahmednagar :-

"There are no extensive plains of rich soil, the river valleys being generally skirted by much hilly, undulating, and broken ground. In the south, towards the Bhima, the country opens out and becomes more level, but there also sterile stony tracts are to be met with. This diversity, however, is pleasing to the eye, and though much of the hilly and broken ground has a naked and bleak aspect, there are on many

* A general map of India has been substituted for the large scale map of the disturbed districts which accompanied the original report.

localities rich table-lands, fertile and well-watered valleys, and level tracts of good soil, though the latter are limited in extent. The soil is of various kinds. A large proportion of it is poor and shallow, suitable only for the growth of bajri, jowari, and other similar crops.*** Towards the Bhima the black soils are very deep and require much labour in their cultivation. They yield very large crops in year of plentiful rain; but unfortunately the climate in that direction is very, uncertain, and crops frequently fail in consequence of a deficiency of moisture.*** The fall of rain from Palmer northward is generally good and certain. Towards the Ghor River and Kolgaon it is not so much to be depended upon and further south the climate is very uncertain until, on the Bhima, years of failure of rain appear to form the rule, and a good year now and then the exception."

20. The following extract from the same report refers to the eastern portion north of the Bhima River, viz., the Karjat Taluka and the eastern portion of Shrigonda:-

"In its aspect Korti is decidedly inferior to any district hitherto assessed. There are few trees anywhere, in some parts none, and owing to the large proportion of rocky and unprofitable ground almost destitute of vegetation, the country generally presents a most dismal appearance.*** Lighter soils of a better description prevail, about Karjat and other places, but on the whole the soil of the taluka is inferior. The climate of Korti is decidedly inferior to that of any other district of the Ahmednagar Collectorate. Towards the Bhima the fall of rain is most uncertain, and the deep soils to be found in that direction also require more rain than the poor soils towards the north."

21. Of the portion of the disturbed area lying south of the Bhima River the westernmost is the eastern part of Haveli Taluka, which is thus described by the present Superintendent of Survey, Colonel Waddington:-

"The tract lying between the Mutha-mula and the Bhima, and which comprises some of the poorest villages — is chiefly stony, sterile, high-lying land better fitted for sheep grazing than agriculture. The district to the south between the Mula and the hills is much more level and contains a large proportion of rich soil.*** The climate varies much, the rainfall increasing as you go *westward*, until in the border villages rice and nagli take the place of jowari and bajri."

To the east of Haveli Taluka lies Bhimthari, the region first disturbed by riot. It is divided into two Portions, the level and rich plain near the River Bhima, and the hilly and rugged portion to the south and south-east. In climate it presents the same variety as Haveli at a less favourable standard, the western or best rainfall of Bhimthari being just below the eastern or best of Haveli.

22. To the east of Bhimthari lies Indápur Taluka, which corresponds very nearly in its physical character to the district lying across, the Bhima north of it, described above as bare of vegetation and suffering from chronic droughts.

23. Throughout the whole area the soil presents the same general varieties with local modifications. It ranges from black alluvial of varying depth and purity in the levels and valleys, through the lighter red soils of the slopes, to the thin gravelly covering of hill sides and water-worn declivities. The black soil of the Bhima valley possesses considerable fertility, but requires much labour in its cultivation, and more rain than the lighter and shallower soils. The red soil is productive under irrigation, but, except in parts of the Ahmednagar District, irrigated crops form but a small fraction of the agricultural produce.

Climate.

24. The entire region is dependent therefore upon the rainfall for its productiveness. The following table gives the rainfall for the last five years:-

Statement Showing the RAINFALL in the following TALUKAS of the AHMEDNAGAR COLLECTORATE from 1870 to 1875

Name of Taluka	Total rainfall during											
	1870		1871		1872		1873		1874		1875	
	In	Cents	In	Cents	In	Cents	In	Cents	In	Cents	In	Cent
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Nagar	46	74	10	1	28	15	33	21	31	64	18	54
Párner	31	89	18	16	23	56	17	55	29	30	20	77
Shrigonda	25	62	9	12	22	10	17	58	33	48	19	35
Karjat	32	26	11	30	31	53	14	60	24	80	14	60s

Statement showing the RAINFALL registered at certain STATIONS in the POONA DISTRICT during the Seasons of 1870-71 to 1875-76

Name of Taluka	Rainfall Registered during the Season of												Remarks
	1870-71		1871-72		1872-73		1873-74		1874 from 1st January to 30th November		1875 from 1st January to 31st October		
	In	Cents	In	Cents	In	Cents	In	Cents	In	Cents	In	Cent	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Haveli (Poona Sassoon Hospital)	40	60	19	88	20	20	26	80	37	75	37	43	
Sirur	25	95	9	91	22	26	18	16	15	17	15	97	
Bhimthari													
Pátas	26	3	12	6	19	1	14	18	25	84	12	26	
Baramati	20	80	12	3	20	77	10	17	26	31	9	61	
Indápur	23	89	9	90	26	47	14	14	26	46	20	49	

More striking are the, figures showing the rainfall of the eight years, 1863-70, at the chief towns of the disturbed district in the Poona Collectorate in contrast with the rainfall of Poona City:-

Year	Poona		Sirur		Pábal		Pátas		Indápur	
	In	Cents	In	Cents	In	Cents	In	Cents	In	Sents
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1863	22	55	7	86	11	38	9	52	3	01
1864	16	55	5	33	17	68	7	83	9	78
1865	31	28	14	61	16	91	11	69	6	95
1866	18	9	7	93	13	67	6	57	4	06
1867	27	29	-	-	-	-	10	88	10	74
1868	30	91	13	88	-	-	10	32	8	43
1869	28	16	17	60	NR	NR	22	76	24	47
1870	40	60	25	95	-	-	26	31	25	77
Average	-	-	-	-	-	-	-	-	-	-

The rainfall being intercepted by the high country between Poona and the sea, its progressive decrease eastward is readily accounted for.

Population

25. The rural population (deducting the cities of Poona and Ahmednagar) amounts to 712,157. The population per square mile is in each taluka as follows: -

Nagar	133.25	Haveli	202.46
Párner	112.75	Bhimthari	115.07
Shrigonda	106.45	Indápur	110.03
Karjat	86.01	Sirur	137.96

The number of houses per square mile is in Bhimthari Taluka only 13.35, but there are nearly 9 persons per house. In the other rural talukas there are about 19 houses to the square mile, and from 5 to 7 persons per house. Probably the infrequency of good sources of water-supply in parts of Bhimthari has discouraged the colonization of hamlets. The average population of the whole of the Deccan is 147 per square mile, and the average of houses 27.07. It will be seen that with the exception of the Nagar and Haveli Talukas, the rural portions of which are favourably affected by the neighbouring cities of Ahmednagar and Poona, the area under report is far below the average even of the Deccan.

26. The area of cultivated land per head of the agricultural population is estimated to range from a little more than three acres in Haveli to nearly nine acres in Karjat Taluka. The small area in Haveli Taluka is to be attributed to the density of its population, and to the fact that the western portion of this taluka contains rice and garden cultivation. This portion was not affected by the disturbances. In the eastern portion, with which we are concerned, the conditions of agriculture are almost identical with those of the contiguous villages of Sirur and Bhimthari, and the average area per head of the cultivating population may be safely estimated at about six acres.

27. The proportion of the rural population concerned in agriculture cannot be ascertained from any existing data with numerical accuracy. The Census enumeration shows those of the rural population who are employed in trades and professions under the classes belonging to their occupation; but such classes almost invariably have an interest in land, which it would be wrong to overlook in estimating the proportion of land to agricultural population. The village carpenter does not draw more in direct wages for his skilled labour than the ordinary cultivator does by the labour of himself and his cattle in non-agricultural employments, and both are maintained chiefly by their land. We believe that a proportion of 75 per cent of the rural population may be safely assumed to be agricultural in the above sense.

Cattle.

28. The number of draught cattle per acre ranges from 0.6 in Bhimthari to 1 in Haveli and Párner. In other words, there are 33 acres per yoke of cattle in Bhimthari, 28 in Indápur, 25 in Karjat, 22 in Sirur, Shrigonda, and Nagar, and 20 in Párner and Haveli. The number of draught cattle per head of the agricultural population ranges highest in the Ahmednagar districts.* This is simply accounted for by the large proportion of unculturable land in the Nagar, Párner, and Shrigonda Talukas, and the greater sparsity of population, particularly in the Karjat Taluka, which allows a larger proportion of land to be devoted to grazing purposes. It should be also noted that the rearing of stock has always been

* Nagar - .49
Párner - .60
Shrigonda - .61
Karjat - .69

more largely pursued in the Ahmednagar than Poona, District, and that there is more well irrigation in Ahmednagar than Poona. The average of draught cattle per head is lowest in the Haveli Taluka of Poona, being .40; but in this respect, as in the average of land per head, the statistics of the Haveli Taluka are seriously modified by the conditions of agriculture in its western portion with which we have nothing to do; and for the purposes of the present inquiry the standard averages of Bhimthari and Sirur are a safer guide. The draught cattle per head agricultural population in Sirur and Bhimthari average .47 and .43 respectively. It will be seen that the ratio is about three head of cattle to every five persons in Ahmednagar, and but little more than two per head to every five persons in Poona.

29. The land revenue per culturable acre is shown in the following table:-

From 4 annas to 5 Karjat	From 9 annas to 10 Nagar
From 7 annas to 8 Párner	From 9 annas to 10 Sirur
From 7 annas to 8 Shrigonda	From 9 annas to 10 Haveli
From 7 annas to 8 Bhimthari	(disturbed portion)
From 7 annas to 8 Indápur	

The incidence of land revenue per head of the agricultural population is highest in Nagar and Sirur, being as nearly as possible Rs. 3-4-0 in each taluka. These talukas show a remarkable similarity in all other conditions illustrated by these statistics. In Bhimthari, Indápur, and Shrigonda the land revenue averages about Rs. 3 per head of the agricultural population. In Párner it averages about Rs. 2-11-0, and in Karjat Rs. 2-3-0.

Comparison with Guzerat.

30. It has been shown above that the area affected by the disturbances is below the average even of the Deccan in population and houses-, but a more accurate appreciation of the statistics summarized may be obtained by a comparison between the Deccan and Guzerat in respect of some of the points noticed.

The area of Guzerat is considerably less than one-seventh of that of the Deccan, while the population is more than one-third. The average to the square mile in Guzerat is 308 against 147 in the Deccan.

The ordinary house of the ryot of Guzerat costs at least twice as much as that of the Deccan Kunbi, and Central Guzerat abounds with large and crowded towns; nevertheless the average number of dwellers in one house is in Guzerat 3.59, in Bhimthari 8.62. The culturable area per head of agricultural population is in Guzerat less than 2, in the disturbed district 6.

Land, revenue per acre is in Guzerat Rs. 2-13-4 in the Deccan Rs, 0-10-1.

The foregoing comparison shows that in the area of our inquiry we have a region of very poor quality as regards agricultural resources. The comparison is made with a province, the average of which will give a fair standard of a district enjoying good resources, but not exceptionally rich as compared with other parts of India.

Produce.

31. The chief products of the disturbed region are jowari (sorghum) and bajri (millet). The appendices show the proportion of these and other crops in the several talukas. For the purposes of inquiry it is unnecessary to consider the statistics of any other crops besides these. Bajri is an early crop requiring a better rainfall than jowari and suited to the lighter and shallower soils. Jowari is a late crop, cultivated more largely in proportion as the rainfall is scanty, and requires a deeper soil. One feature of both these crops is the value of the straw for fodder, which in a year of comparative drought, when the grain is not formed, nevertheless gives some slight return for the seed-and labour expended. The data on record or available for ascertaining the average yield per acre of these two staple products are meagre, but the following estimate of the out-turn in a year of average

rainfall, (the average being considerably below the maximum and above the minimum), is probably not far from the mark:-

	Good Soil	Middling	Poor
	MAUNDS		
Jowari	7	3	1
Bajri	5	3	$1\frac{3}{4}$

At the average price ruling for the last four years the produce as above would be valued as follows :-

	RS.	A.	P.	RS.	A.	P.	RS.	A.	P.
Jowari	9	13	6	4	3	6	1	6	6
Bajri	9	6	0	5	10	0	3	4	6

To these values may be added, the value of the straw, which in the case of jowari, appears from the evidence available to bear a proportion of about 6 annas worth to the rupee's worth of grain, and in the case of bajri of $2\frac{1}{2}$ annas to the rupee of grain in the good and middling soils. In the poor soils the proportional value of the straw will be much higher, being about *equal* to that of the grain in the case of jowari and about one third of the value of the grain in the case of bajri. The results in money of the, above estimates are therefore as follows:-

	RS.	A.	P.	RS.	A.	P.	RS.	A.	P.
Jowari	13	8	6	5	13	0	2	13	0
Bajri	10	13	5	6	8	0	4	6	0

Former Condition of the Country.

32. The region under report came into British possession in A.D. 1819-20, 21. In the beginning of the century it had, in common with the rest of the Deccan, suffered frightfully in the disorders which preceded the downfall of the Mahratta power. In 1838 Lieutenant Nash of the Survey Department reports that the people of Bhimthari still remember the plundering march of Yeshwuntrao Holkar through the country in 1802, and the famine that was its consequence. Following the calamities of war in the early years of our rule came cholera, the ravages of which may be estimated from the fact noted by Lieutenant Nash of the deaths in the three first years of the plague, of 460 people in a village of about 1,000 inhabitants. The country was without made roads, and the hill ranges rendered the transport of commodities by pack animals difficult and costly; the agricultural community suffered in years of drought by the famine prices of articles of consumption, and in years of plenty, by the low prices of their produce in the overstocked local market. Of the Southern Division of the Bhimthari District, so late as 1843, Lieutenant Nash writes:- "Carts can reach Bhore, but unfortunately there are but very few in the district, except some with solid stone wheels ill suited for purposes of traffic." To the natural obstacles in the way of traffic were added the obstructions of transit dues.

During the years immediately preceding the British rule, the practice of farming the land revenue had been largely adopted by the Peshwah Bajee Rao, and where it prevailed regularity in assessment and collection was impossible. To quote the words of Colonel S. Anderson of the Ahmednagar Survey:- "The farmer being only desirous of securing a profit left all the interior arrangements to the village officers; and so long as a good round sum was forthcoming from each village no inquiries were made as to the amount of land under cultivation, or the assessment payable, by each cultivator; the actual crops where stacked and stored formed the best criterion of the paying capabilities of the village * * *. The old rates were sometimes retained in the case of Mirás or other holdings that had been long cultivated in the vicinity of the village, but the remaining lands were given out * * * * without reference to old established boundaries, rates, or land measures." When the revenue was collected by the Government officials, the assessment was usually settled in the lump with the Patel of the village, who furnished security for the amount,

and was left to collect it without detailed settlements. The payments of land revenue were usually made by drafts of the sowkar who had the chief banking business of the village, and but little was collected in cash. The sowkar usually stood security, and was then allowed to collect the revenue and his own debts together. Beside the land revenue the people had to pay numerous other taxes. Twenty-four cesses are enumerated as payable by the ryots of Poona, and twenty-six as levied in Ahmednagar District. In spite of these unfavourable circumstances the agricultural classes during the period immediately preceding British rule were recovering from the heavy calamities of the wars in the beginning of the century. Their proximity to Poona, in which the wealth of subject and tributary provinces was collected and spent, gave them great advantages. The population was scanty and land proportionally abundant, and much of their wealth consisted of flocks and herds, the produce of which was less exposed to the rapacity of the tax gatherer than the proceeds of cultivated land.

Condition in early period of British Rule.

33. The officers concerned in the settlement of the land revenue of these districts in the first years of British administration formed an exaggerated estimate of their capabilities, and during a period of steadily falling prices based these settlements on a standard exceedingly high even if prices had been maintained. It would not be difficult to account for this over-estimate, but whatever its causes, the consequences were ruinous. A rough survey was made about 10 years after the acquisition of the country, and the assessment was in some cases modified at the same time; but it was not, generally speaking, until nearly 20 years of over-assessment had reduced the agriculture of the country to the lowest point that the remedy was vigorously applied. The following extracts from reports of the officers engaged in the survey and settlement of Poona about 25 years ago show the condition of the people at that time:-

Sir- G. Wingate writes:- "There can be little doubt that the over-estimate of the capabilities of the Deccan formed and acted upon by our early Collectors drained the country of its agricultural capital; and accounts in great measure for the poverty and distress in which the cultivating population has ever since been plunged."

Lieutenant, Robertson writes:- "The condition of the people * * is by no means so impoverished as of those who fell under my notice further eastward in the Sholapur Collectorate, and the existing assessment, though unquestionably too heavy, it is not so intolerable as elsewhere. Wretched though the peasantry be, yet they are some shades better circumstanced in their houses, clothing and personal necessaries, and also in their stock and agricultural essentials. The villages are in many places, very dilapidated, and their walls crumbling to the ground. There are 33 chantries, of which 19 are inhabitable and the remainder in a miserable plight. Manufactures cannot be said to flourish, though they pay wages to the amount of Rs: 593-15-11; of schools there are 11 and of shops 188;"

Lieutenant Nash writes:- "The preceding paragraph contains facts that will justify my asserting that this District, like those I have already been employed in, is suffering from the evils that a high nominal assessment, with constant remissions and balances, is certain to produce."

Sir George Wingate again writes:- "Under our management it appears to have recovered little, if at all, from the effect of these calamities; and even now little more than a third of the arable land is cultivated, while the net receipts of Government have not in any of the two last years, as appears from Lieut. Nash's 16th paragraph, exceeded Rs. 16,000; all this betokens a state of abject poverty, and, with the view of fostering and developing the resources of a country so situated, the demands of Government cannot be too much reduced."

And in another place, writing of the assessments introduced, together with the first rough survey about the 10th year of British Administration, he writes:-

> "To adopt as a basis of assessment an average of past collections was to admit that the previous settlement was not heavy as a whole, but merely required being properly apportioned, which the yearly increasing poverty and wretchedness of the people, a declining cultivation and a progressive fall in the price of grain notwithstanding a diminished supply, all tended to disprove."

All the above extracts refer to tracts within the disturbed area of the Poona Collectorate. Similarly it is reported by the Superintendent of the Ahmednagar Survey, Colonel Anderson:-
"The rates adopted in 1818-19 proved, as has already been mentioned, much too high, and although they were considerably modified in practice, it was necessary to resort to other remedial expedients to save the ryots from ruin." And again, comparing the District of Kurdeh with another taluka, Colonel Anderson answers:- "The more unfavourable character of the results exhibited must be mainly attributed to a greater degree of over-taxation." The hardship of over-taxation was further aggravated by a laxity that permitted the Revenue officials both to collect and appropriate remission granted and to levy assessment for their own pockets in excess of the authorised demand. The Revenue Commissioner, writing of the district of Indápur in 1834, says:- "I firmly believe that not one half the remission has reached the ryots, and probably the portion of the actual collections that has been paid into the treasury has not been much greater." The economic condition of the agricultural class during the first 20 years of our administration may be concluded from the facts that while population was increasing, the area under the cultivation steadily diminished, and while production was decreasing prices steadily fell.

Condition in recent period of British rule.

34. The re-action in agricultural prosperity under light assessment, and a system at once simple and rigid was as rapid as the decline of the district had been under the opposite conditions. The introduction of the Revenue Survey and Assessment in 1836 marks a new era for the Deccan ryot. The principles of assessment and land revenue administration worked out by the able and distinguished officers at the head of the Survey approved themselves by their results. During the period which followed, the district under report reached a very high standard of prosperity before the year 1860. The condition of the region was in many respects, entirely changed. Instead, of large tracts of land lying waste, all the culturable land was brought under the plough. Population and agricultural capital of all kinds increased steadily. The country was supplied with carts, and good roads abounded, in place of the tedious and wasteful carriage on pack bullocks along a jungle track. The railway, the construction of which poured money into the villages in the wages of labour and carriage, traversed the richest part of the region. Prices of produce and wages increased with a much larger revenue to pay on the larger area of cultivation, remissions became unknown, and more capital was yearly invested in wells and more and more in reclamation.

35. In 1862 began the period of extraordinary prosperity caused by the rise in the price of cotton which followed the American blockade. In those years the ryots would under ordinary circumstances have suffered severely from the constant deficiency in rainfall during five successive seasons. But the abnormal value of produce made the scanty crop of a year of drought equal to the full crop of a good season. The competition for labour made it possible for the ryot and his family to earn the assessment of an ordinary holding by a fortnight's work, and the enhancement of his credit enabled him to borrow sums far beyond the ordinary value of his capital.

36. Such circumstances in the ryot's condition during the periods above briefly reviewed as affect him in his relation to the sowkar or money-lender are reserved for consideration in subsequent chapters of this report, as also are the features of the last period preceding the riots.

CHAPTER III - THE RELATIONS OF SOWKAR AND RYOT, AND THE CAUSES OF DEBT.

The Debtor and Creditor Classes.

37. Before reviewing historically the relations of the sowkar and ryot, it may be well to describe briefly the characteristics of the two classes as presented in the types which figured most prominently in the recent disturbances:-

The Kunbi

The great mass of the agricultural population belongs to the Kunbi caste which constitutes the bulk of the Mahratta race. The ordinary Kunbi of the Deccan is a simple well-disposed peasant, contented with the scantiest clothing and hardest fare. Utterly uneducated, and with a narrow range of intelligence, he is not without masculine qualities, and meets with a stubborn endurance the unkindly caprices of his climate and the hereditary burden of his debts, which would drive a more imaginative race to despair or stimulate one more intelligent to new resources. The apparent recklessness with which he will incur obligations that carry the seeds of future ruin has earned him a character for extravagance and improvidence; but the apparent recklessness is often sheer necessity, his extravagance is limited to an occasional marriage festival, and his imprudence is no greater than that of all races low in the scale of intelligence and civilization who live only in the present. Supposing what we know to be unfortunately not the truth, that his surplus is in any year at his disposal, then to assume that in a good year he will lay by to meet the deficit of a bad season is to credit him with a foresight and self-denial which it is notorious that the peasantry of even civilized countries rarely display; if any of our laws which affect him proceed on this assumption they will inevitably produce suffering; if it be held that painful experience will teach him prudence, it must also be shown that the suffering is produced by causes which it would not be possible or right to remove, or that it is justified by the results of its teachings upon the sufferer.

The Marwari

38. As the Kunbi represents the agricultural so the Marwari represents the money-lending class. It is remarkable how much of the money-lending business of the district under report is conducted by foreign immigrants. Beside the Marwaris there are numerous Guzerathi and Lingaet Bunniahs engaged in this profession; and although there is a considerable number of Brahmin and Kunbi money lenders, and individuals of other castes, Telis (oil-pressers), Chambars (leather-workers), Sonars (goldsmiths), and others, who lend money to the ryots, the amount of their business altogether will not equal that of the Marwaris and other Bunniahs. Except a few Brahmins, most of the indigenous money-lenders have other occupations or sources of income, and the Brahmin sowkars of the villages are usually members of the Kulkarni (village accountant) family, and not hereditary money-lenders.

App.C., p.260

Marwari sowkars were already settled in the Deccan in considerable numbers before British rule. They were naturally looked upon with disfavour by the Mahratta Governments as aliens who came to make money out of the people of the soil which they often took away in hoards to their own country; they belong as a rule to the Jain sect in religion, and found little tolerance for their worship before the British rule began; instances are recorded in which temples erected by them were forcibly converted to the purposes of Hindu

worship. Most of the Marwari sowkars are now colonists of the Deccan. Recent arrivals from Marwar are rarely met. Many, however, have immigrated within the last 30 years. They usually begin business as clerks and servants of one of the established sowkars, and after making a trifling capital set up on their own account; thus new shops are continually being, opened. The head-quartars of the Marwar immigrants into the Deccan is the town of Bamburi, a few miles north of Ahmednagar; they have a large community there, and it is the centre of their exchange and banking business. The proportion of Marwaris to other sowkars is much larger in Ahmednagar than in Poona. In some places they enjoy almost a monopoly of the money-lending business, and it is probable that they made more way in Ahmednagar under former governments, being less under the observation of the Mahratta rulers and their Brahmin ministers, than in Poona near the centre of Government.

There can be little doubt that the position of the Marwaris among the Mahrattas, as aliens looked upon with disfavour, has had the effect of making them indifferent to public opinion, and left them more free to use those practices of the money-lender which in all ages and countries have brought a stigma upon the usurer class. The average Marwari money-lender is not a pleasant character to analyse; his most prominent characteristics are love of gain, and indifference to the opinions or feelings of his neighbour. He has considerable self-reliance and immense industry, but the nature of his business and the method by which it is pursued would tend to degrade and harden even a humane nature, which his is not. As a landlord he follows the instincts of the usurer, making the hardest terms possible with his tenant, who is also his debtor and often little better than his slave. The Marwari sowkar has usually sufficient education to draw up his own plaint, and to understand the law and procedure as well as his vakil; he is an excellent accountant and generally quick-witted in all that concerns his business, but outside of these limits he has no interests and no capacity.

39. The following description of the money-lending classes in Ahmednagar is taken from notes on the subject by Mr. Sinclair, Assistant Collector, and applies with fair accuracy to the same classes in Poona District; but it must be remembered that the proportion of Marwaris to other sowkars is much larger in Ahmednagar than in Poona, and that in Ahmednagar the sowkars show a desire to hold the lands of which they acquire possession, as Government tenants, by having the occupancy transferred to their names, which is not often the case in Poona.

Mr. Sinclair writes as follows:-

App.A., p.294

"The capitalist classes are, first and most numerous, the small traders and money-lenders of the villages, chiefly Marwaris and Guzers, with a few Lingaits and Vaiswanis and others. These advance grain for seed and subsistence, and money upon pledge, mortgage, or good security. The 2nd class are the rich bankers or traders of large towns, among whom, besides the races mentioned, are found a good many Brahmins chiefly of the Yajur-vedi Deshast caste. Those kulkarnis who are moneylenders are generally closely affiliated to these Brahmin bankers as in the unfortunate village of Ghospuri, the kulkarni family of which chiefly live at Nagar, where their principal shop is. They are also much connected with the vakils and to some extent with the official class. They deal much less in advances of grain than the traders of lower caste and have a much greater taste for getting land into their own hands and names than the immigrant traders. As the kulkarnis are connected with these, so are the small Bunniahs of the villages mentioned in the first class often mere jackals to their richer caste fellows in towns. The third class consists of

cultivators who have kept out of debt and are able to make small advances in money and grain to their neighbours.

"The first class are particularly odious to the people, and on them fell the main weight of the late troubles. The second class are less unpopular. In the first instance they deal less directly with, the poor ryots, who are accordingly less reminded of them by daily dunning. Secondly, those who are Brahmins derive some advantage from their caste and community of country and religion; and thirdly, as these sometimes aim more at the land than at money, there is an end of the business when they have got that, and the former possessor lives on as tenant, screwed and rack-rented indeed, but a good deal better off than the bond slave of the village usurers. These circumstances and the invariable presence of the police in large towns prevented this class from feeling the weight of popular indignation last May and June to anything like the same extent as the first. They are, however, as a body fat lazy rogues, bad landlords, and the most intriguing and scheming lot in the country.

"The third class of money-lenders, those sprung from the ranks of the people themselves, are often grasping and dishonest enough, but their debtors deal with them much more on an equality, and community of race and residence not only has a tendency to make them easy in their dealings, but brings any unusual villainy under the ban of the public opinion of the caste and village. These are for the most part skilful cultivators and good ryots to Government. They were sometimes threatened during the riots, but I am not personally aware of their having been in any case really injured in any way, and it is not necessary to refer further to them in this report.

Historical review of indebtedness.

40. The earliest record shows that indebtedness was common among the Deccan ryots when their country came into our hands. Mr. Commissioner Chaplin, reporting on the newly acquired Deccan districts in 1822, writes:-

App.C., p.260

"The ryots in many villages, though usually frugal and provident, are much in debt to sowkars and merchants owing to the oppression of the revenue contractors; many of these debts are of long standing, and are often made up of compound interest and fresh occasional aids which go on accumulating so as to make the accounts exceedingly complicated; a ryot thus embarrassed can seldom extricate himself. His exertion may be compared to the hellish torments of Sisyphus, who had no sooner rolled his burthen to the summit of the hill than it fell back upon him with redoubled violence. *** The Mirás* fields of ryots are sometimes mortgaged for these debts."

Again he writes: "The collector of Ahmednagar, notwithstanding some embarrassments, is of opinion that there is an universal tone of satisfaction among the ryots resulting from the improvement of their condition, and he thinks that they are gradually extricating themselves from their difficulties. The general feature of the picture is correct; but it is perhaps charged with colours a little too brilliant. He thinks that complaints against them from the sowkars are decreasing, but this circumstance is partly to be ascribed to many of these debts having been declared inadmissible."

These debts were of two kinds, public and private. "The public debt of the village community arose usually from advances or loans made to the Mahratta Government to be recovered with interest from the revenues of villages assigned to

* Mirás tenure comprised a right of occupancy at the customary rate and other privileges distinguishing it from the ordinary tenancy-at-will.

the State creditor: the private debts were the result of the system before mentioned by which the collection of the State dues was made through sowkars, who usually recovered in kind what had been paid in cash and drafts. It has been shown that the great mass of the agricultural population had no such interest or title in their land as to afford security for large debt. Mr. Chaplin indeed mentions that "Miras holdings are sometimes mortgaged," but in another place he estimates the selling value of Miras land at not more than two or three years' purchase, and states that land yielding Rs. 200 of gross produce can seldom be mortgaged for more than Rs. 100. The usual and recognized method for recovery of debt was for the sowkar to tend a Mohosul, that is, a servant whose maintenance had to be paid daily by the debtor, or to place a servant in "Dharna" at his door (which is the process called "Tuquaza" by Mr. Chaplin), or to confine the debtor in his house or otherwise subject him to restraint and even severer measures. It is plain that such methods could not be put in force against any but the humbler class of debtors, and doubtless the ordinary dealings of the sowkar and ryot were based rather on the ascertained result of experience teaching each his own interest than on any power of compulsion in the hands of the creditors The ryot's constantly recurring necessity could not be relieved unless he maintained his credit by good faith, and on the other hand the sowkar had no support from without to look for in exacting more than a fair profit, which, considering his risks, would be also a large profit. Honesty was the ryot's best policy, and caution was a necessity to the money-lender.

41. The condition of the ryot as regards his relation to the money-lender when British rule commenced may be summed up as follows:-

1st- There was a considerable burden of debt, and many of the ryots were living in dependence upon the sowkar, delivering to him their produce and drawing upon him for necessaries.

2nd- The ryot's property did not offer security for large amounts; his cattle and the yearly produce of his land being the lender's security, the mortgage of mirás land was rather a means by which the sowkar got a firmer hold upon the produce than upon the land itself, for immovable property was not sold for debt, and the mirás title would have no value for a non-agriculture landlord.

3rd- Rates of interest were very high, and much of the debt consisted in accumulations of interest.

4th- The causes of indebtedness were chiefly the revenue system, and sometimes expenditure on marriages or such occasions.

5th- The amount of individual debt was usually moderate.

6th- The sowkars were usually men of substance, maintaining establishments employed in dunning and looking after debtors.

7th- The creditor received little or no assistance from the State in recovering debts, but had great license in private methods of compulsion.

Relations of Sowkar and Ryot.

First Period of British Rule.

42. Under British administration this license was curtailed, and courts presided over by the collectors were open to suitors, but the sowkars did not at first have recourse to them; this and other causes referred to by Mr. Chaplin in his report caused a contraction in the sowkars' dealings. In a district such as this, however, with a rack-rent assessment, the ryot's necessities compelled him to keep on terms with his sowkar, and the ordinary Kunbi debtor even of the present time does not often repudiate debt; it does not appear, therefore, that the contraction of credit which followed the introduction of British rule was more than temporary, while the fall in prices, with the high rate of assessment maintained, must have made the ryot's need of the sowkar even

greater than before. We have not been able to find any record bearing on subject for the years immediately following Mr. Chaplin's report, but it is certain from subsequent information that the burden of debt grew rather than declined before the introduction of regular courts and procedure.

Second Period under Regulation.

43. In 1827 the first regular procedure for the administration of civil justice was introduced into Bombay Presidency by Regulations II, III, IV, and V. Regulation IV provided the procedure, and Regulation V limitations for civil suits. They contained clauses which will be referred to and may be noticed here. In Regulation IV the cattle and implements necessary for the support of the agricultural debtor were declared exempt from seizure on account of debt. Regulation V limited the rate of interest recoverable in a Civil Court to 12 per cent per annum. When the new courts came into operation, the ryot had no title in his land except in the case of mirás tenure, and the revenue demand was still crushing. These circumstances left but little security to the sowkar for debt not speedily realised, and the courts afforded the means for speedy realization; we find accordingly that they soon began to be resorted to.

App. A., p. 2. Extracts from Record of 1843.

44. The first full record bearing on the subject is the result of an inquiry made in 1843 by the Revenue Commissioner of the Northern Division. The substance of the Collector's reports are given in the Appendix. The Collector of Poona, after premising that it is well known that all enactments to fix a lower than the market rate of interest have had the effect of enhancing it, proceeds to state that money in this country is frequently borrowed, on mere personal security at from 35 to 60 per cent; and when it is considered that the borrowers seldom possess any property, it appears to him rather surprising that they should be able to procure credit at all than that the rate of interest should be so high. Messrs Frere and Rose, the Collector's assistants, also submitted reports. Mr. Frere states there are few villages in the two *parganas* under his charge in which there is one ryot unburthened with debt, and scarcely a single village in which three persons could be found not involved for sums above Rs. 100. These debts, he says, are contracted on occasions of marriages and other rites, the interest charged varying from 25 to 60 per cent. Mr. Rose observes that the usurious character of the village *Bania* is notorious, and he attributes the poverty of the Deccan ryots in a great measure to his rapacity; he is afraid, however, that it will be difficult to remedy the evil effectually, as the ryots consider the Bania almost necessary to their subsistence, and their thoughtlessness and ignorance would render it easy to frustrate any attempt to check or put a stop to his exorbitant gains. The interest agreed upon in cases where the ryots are concerned is generally enormous, and the agreements are often fraudulently procured.

The Collector of Ahmednagar wrote that the measures which Government had from time to time adopted for the relief of the agricultural ryots had only made the money-lenders more rapacious and unrelenting. Bonds were renewed at exorbitant rates, the interest and principal being entered in the fresh bond, and he instances a case in which a loan of Rs. 61 was made to run up in 14 months to Rs. 189, and a decree was given against debtor.

The Collector of Kaira stated that money was, advanced at 12 per cent interest, besides a premium deducted from the loan, of from 1 to 6 per cent:

> "The money-lenders favour the ryots with loans at 12 per cent interest as allowed by our Civil Regulations, besides which they generally receive a premium (which is deducted from the loan) and varies from 1 to 6 Rs. per cent according to the credit of the borrowers.
>
> "There are in this zillah about 50,000 cultivators of Government land, one-fourth of whom, or 12,500, are in a condition to dispense with sowkar aid by being possessed of sufficient funds of their own but the remaining

three-fourths, or 37,500, cannot, I imagine, carry on their affairs without the assistance of money-lenders. Of this latter number about; two-thirds, or 25,000, are regular in the payment of the sums borrowed from the sarafs, and consequently no suits are filed against them, nor are they obliged, to pay higher interest than from 6 to 9 per cent; whilst the rest of the ryots, about 12,500, are so strained in their circumstances as not to be able to discharge their debts punctually, and are therefore required to pay 12 per cent interest on sums borrowed, besides a premium of from 1 to 6 Rs. per cent, which is always added to the loan, and the bond passed is for the total amount inclusive of the premium, which, however, is not mentioned therein. Again, when the time for payment arrives, and they are not prepared to answer the demand, the sowkars insist on a fresh bond being passed for the amount of the debt with interest thereon, besides whatever other sum the ryots will consent to be added for the credit and forbearance, the whole again running on at 12 per cent interest till liquidated. *** The average number of attachments in this zillah is about 1,000 annually.

45. It will he observed that in this correspondence the attention of the officers reporting was usually fixed upon the question of usury. The Collector of Kaira indicates that the debtor class were beginning to feel the pressure of legal processes; he states that 1,000 attachments* had issued during the year, and that the debtors renewed bonds with a premium "for forbearance." The Collector of Ahmednagar also mentions the conversion of a usurious loan into a decree, and the Collector of Surat notes that the law regarding enforcement of decrees was worked, by combination of the sowkar class, to the prejudice of the judgment debtor; but the Collector of Khandesh does not suppose that the money-lenders resort much to our courts.

On the whole it is evident that the burden of debt was not as yet aggravated to any degree of severity by the operation of the law. This was to be expected, for the ryot generally had no title in his land except that conveyed by the mirás tenure, and his agricultural stock and implements were protected from legal seizure. Other points that call for notice in this correspondence are:- *1st* That the money-lenders are spoken of as "the village Bania", the "village sowkar," and in similar terms, indicating that as yet the long established money-lender of the community was the only sowkar with whom the ryot had to deal. *2nd* That expenditure on marriages, caste rites, and similar occasions is generally assigned as the cause of indebtedness. *3rd* That those districts which at the present time are most debt-ridden furnish the most unfavourable reports.

The evidence of the records from 1850 to 1858.

46. We have seen that about the time when this inquiry was made the period of prosperity which followed the introduction of the survey and settlement, and of a sounder and more liberal system of revenue into the Deccan, had already commenced. The favourable features of that period have been noticed above. Strong inducements existed for the ryot to increase his agricultural operations, and the sowkar found enhanced security and ready machinery for recovery to encourage him in loans. We find accordingly in the record relating to this subject from 1850 to 1858, two features which had already become marked characteristics of the relations of sowkar and ryot under the altered conditions of our revenue and judicial systems. These are the growth of small capitalists engaged in money-lending, and the unequal operation of our laws to the disadvantage of the ryot. The

* In 1873, 4,926 attachments issued from the subordinate courts in Kaira.

appendices deal fully with the relations of the sowkar and ryot from 1848 to 1858, but in illustration of the above remarks the following passages are extracted. The Superintendent of the Ahmednagar Revenue Survey, Captain G. S. Anderson, writes:-

App. A, p. 8.

"The country has not hitherto derived that benefit from the Marwaris which it would do from respectable and permanently resident capitalists. **** The people are much preyed upon by needy adventurers, and there is a great deal of reckless and fraudulent trading carried on, which appears to me not only to entail much injury and oppression on the ryots, but also subjects the traders themselves (at least the honest portion of them) to loss. No one could object to the legitimate employment of capital, but at present the doings of the Marwaris far exceed the limits of fair trading, and in many localities it does not appear to be so much their object to trade with the ryots as to get them, by fair means or foul, into their hands, so that they may use them as mere tools in the acquisition of fortunes. For instance, a ryot may borrow two mounds of grain, the price of which is, say, Rs. 2 or Rs. 3. This, by tricky proceedings on the part of the Marwaris, is converted into at money debt of Rs. 12, and subsequently, by the writing out of new agreements, it gradually increases to Rs 50 or upwards. In this manner a ryot becomes so entirely involved that it is not in his power to extricate himself by any honest exertion of his own, and he either remains in a slavish state of poverty and indebtedness, or should he show signs of resistance to the Marwari's continued exactions he is dragged into court and ruined, to deter others from proving disobedient."

App. A., p. 89.

Again Captain (now Sir G.) Wingate wrote, in 1852 :-

"The facilities which the law affords for the realization of debt have expanded credit to a most hurtful extent. In addition to the ordinary village bankers, a set of low usurers is fast springing up, by whom small sums are lent for short periods at enormous rates of interest to the very lowest of the populations who have not credit enough to obtain advances from the more respectable of the village bankers. All grades of the people are thus falling under the curse of debt, and should the present course of affairs continue, it must arrive that the greater part of the realized property of the community will be transferred to a small monied class, which will become disproportionately wealthy by the impoverishment of the rest of the people. No greater misfortune could befall any nation than this, by which the many are made miserable in order that the few may be pampered. And yet this is the inevitable tendency of the existing relations between debtor and creditor in our presidency."

App. A. p. 16.

In 1858 the Revenue Commissioner, Mr. Inverarity, submitted to Government a report from the Collector of Ahmednagar in which the following passage ocours:-

"The aid given by our courts is all on the side of the Marwari, who alone knows how to turn that aid to his own advantage. The position of the litigants is not, therefore, simply of debtor and creditor, it is the fraudulent Marwari, backed by civil courts, versus the helpless ryot, signing any bond without even a true knowledge of its contents, and powerless to oppose any decree that may be passed. This matter keeps up a constant irritating sore throughout the society, and the whole onus is thrown by the people on the civil courts, whereas it is the law which is at fault in assuming that debtor and creditor in this country to be equal, while they are rather in the position of master and slave. The question is one of vital importance both to Government and the people.

Even the passive society of the East cannot bear so great a burden without making from time to time convulsive efforts to shakes it off. These efforts must increase in frequency and strength, unless the Legislature seriously take up the evil and applies the knife to it."

On the Revenue Commissioner's letter the Governor in Council recorded the following resolution:-

"His Lordship in Council entertains no doubt of the fact that the labouring classes of the native community suffer enormous injustice from the want of protection by law from the extortionate practices of money-lenders. He believes that our civil courts have become hateful to the masses of our Indian subjects from being made the instruments of the almost incredible rapacity of usurious capitalists. Nothing can be more calculated to give rise to widespread discontent and disaffection to the British Government than the practical working of the present law. The attention of the Legislative Council on the subject should be requested, and copy of the Revenue Commissioner's letter forwarded for their consideration."

The subject was then again for a time dropped.

Repeal of limitation of interest, 1855.

47. It had become well known that the regulation restricting the rate of interest recoverable to 12 per cent was evaded by the money-lenders by the deduction of discount or more properly of interest taken in advance, from the consideration given to the debtor. The usury law had the natural effect of placing the debtor in a worse position by the introduction of a practice which has survived its cause, by which the debtor is compelled to co-operate in a fiction to evade the law; for the bond acknowledges receipt of a consideration which has not actually passed. In 1855 accordingly an Act was passed repealing the restriction on interest.

Acquisition of land by sowkars.

48. As another natural result of the enhanced value of agricultural investments caused by the survey settlement, we find the practice of raising money on mortgage of land gradually making way and private transfer to sowkars occasionally resorted to. Such transfers were doubtless made in liquidation of debt, and not for the purpose of raising money, as no cultivator would part with his land altogether for such a purpose. It must be presumed, therefore, that the money-lender in such cases compelled the transfer by threat of imprisonment or other alternative having terrors for debtor. The following figures show the growth of money-lenders' property in land in the district of Poona as exhibited in the accounts of 24 villages, and illustrate the above remarks, as do also the results of the Commission's inquiries given in the Appendix.

App. C., p. 200.

In the 24 villages mentioned the number of occupancies held by sowkars in the years 1854, 1864, and 1874, with their area and the assessment payable at each period were as follows:-

	1854.	1864.	1874.
Number of Khatas	164	203	272
Area in acres	4,001	5,292	10,075
Assessment	1,924	3,721	7,134

In noting these figures it must be remembered that during the latter part of the period embraced there was but little unoccupied waste, and the increase in sowkar holdings implies a corresponding decrease in those of the cultivating class. It will be observed that the increase in the assessment is greater than that in area, showing that the better class of lands was passing into the

sowkars' hands, and further that the increase in the number of *khatas* indicates an increase in the number of sowkars, the particular feature of our subject which was dwelt upon above. The rate of increase in the area of land held by sowkars was much greater in the district of Ahmednagar than in Poona.

Procedure before 1859 more favourable to debtors.

49. Although the property of the money-lending class in land was thus increasing, the sale of occupancies under decree was rare; this was probably due to several causes. In the first place the people had not acquired full confidence in the title given by the survey settlement, probably hardly had confidence as yet in the stability of our rule; the only land-sold was mirás, which was held by a recognized title familiar and reputed to be safe. It is not often the interest of a creditor to sell his debtor out of his holding; as the ryot's agricultural stock and implements were protected from sale, he could not be pauperised, and was likely to be more productive if left in possession of his land, the creditor securing the fruits of his labour, than he would be as a mere tenant. The sale of immovable property for debt was opposed to usage and public opinion, and unless the land was directly made security, the courts would be reluctant to have it sold whenever the claim might be satisfied by other means more consonant with native usage.

The returns of the judicial work of Poona and Ahmednagar clearly show how far the method of disposing of business in the courts before 1859 was favourable to defendants, by comparison with the more strict procedure introduced in 1859. The suits in subordinate courts adjusted without judicial action averaged a proportion of 1 to 4 to those actually heard. Thus in the Munsif's courts of Ahmednagar in 1850, 2,395 suits were adjusted or withdrawn against 9,048 decided. In 1859 as many as 4,538 suits were adjusted or withdrawn against 15,622 decided. In the Poona Munsif's courts 2,055 suits, were settled in 1850 against 6,838 decided, and in 1859, 1,869 were settled against 8,191 decided. The rate at which the growing work was disposed of in this district is well indicated by the proportion of suits left undisposed of at the end of the year. In Ahmednagar District in 1850 suits to the number of 16,560 were filed, and at the end of the year 3,473 remained on the file; 1858, 25,357 suits were instituted, but 10,400 remained, on the file at the end of the year. In Poona District 13,008 suits were filed in 1850, and 2,400 were left on the file at the end of the year. In 1858 there were 13,742 suits filed and 5,395 undisposed of at the end of the year.

Increase of suits for debt following on the survey.

50. It is to be regretted that returns cannot be obtained for the years previous to 1850, showing how the period of returning prosperity in the Poona District was illustrated by the work of the civil courts; but the figures for Ahmednagar which embrace the years of the introduction of the survey settlements into that district show very clearly the connexion between the improvement of agricultural securities following the settlements and the expansion of litigation on accounts of debts. The first three years of the period in our return (1850-1-2) saw the survey settlements introduced into Ahmednagar (the district at that time included a portion of the present Nasik Collectorate), and it will be remarked that an immediate and considerable impetus was given to litigation. There was a temporary re-action in the expansion of agriculture in 1854, the people having taken up more land than they could cultivate, and accordingly we find the work of the courts is reduced during that year and the next, only however to increase again until the number of suits in 1859, had reached 25,136 as compared with 15,633 in 1850.

The returns show that the imprisonment of the debtor was a favourite method of procuring settlement of debt. It has been stated that the sale of land was rarely resorted to, and the realization by the sale of the debtor's house was noticed as an innovation; imprisonment would therefore be more often used. During the three years from 1850 to 1853 there was an average of 530 civil prisoners in Poona Jail as compared with an average of 204 in the years from 1860 to 1863, and in Ahmednagar an average for the same periods of 49 as compared with 29.

The ryots prosperous in 1860.

51. Notwithstanding the pressure of debt, and the hardships inflicted by the laws upon the ryots as shown in the extracts alone, there can be little doubt that about 1860 the agricultural classes of the Poona and Ahmednagar Districts were on the whole in a far better position than they had been for years. The conditions of agriculture had been favourable; in the former district for nearly 20 and in the latter for nearly 10 years they had enjoyed a fixed assessment at moderate rates, large tracts of waste lands had been available for extended industry; not only were ordinary communications and means of transport improved, but the railway had been brought within easy reach, the construction of this had poured into the district a sum of not less than 20 lacs in wages of transport and labour; and above all a series of good seasons had brought ample return to the ryots for their industry. Although, the sowkar might have recourse to the Civil Court there was a possibility of the ryots being able to borrow from another in order to pay him, and the court would give time; if a decree passed against the ryot, his stock and implements were safe and his land not in real danger; he might be imprisoned until he signed a new bond, but was not likely to be pauperised. *App. A., p. 18.*

The degree to which the general prosperity affected the relations of ryot and sowkar it is not easy now to estimate. The Collector of Ahmednagar, writing in 1862, states that some of the people admit having freed themselves from debt, and it is probable that the more provident ryots and those with the least previous debt had reduced their liabilities to such a point that they felt no concern and were subject to no annoyance on account of them. This is still the condition of a large number of the ryots in the district with which we are concerned, and it seems probable that the period of prosperity did little more than bring into prominent distinction the class of well-to-do solvent agriculturists, whose circumstances allowed them to emerge quickly from the general level of poverty to which all had sunk. More information is required as to the class of borrowers to which the bulk of the agricultural population should be assigned before any sound conclusion can be drawn as to how they would be affected by the reduction in the rate of interest which the Collector states had taken place before 1862.

Viewed in the light of the same officer's report of four years previously (1858), and of the recorded opinions of other officials relating to the same period, the conclusions drawn by the Collector of Ahmednagar in 1862 must be regarded as reflecting somewhat too strongly the general tone of prosperity and well-being which his district exhibited as contrasted with its condition when he had first known it 16 years before. Such apparent prosperity and actual material increase of wealth is not inconsistent with the existence of a vast amount of debt; debt might act as a stimulus to increased effort so long as extended cultivation and fair prices made production profitable; additions to the material wealth of a country are not the less real because the capital employed in their production is borrowed, and because a sudden check in his rate of profit may ruin the

producer. As bearing on the question of the ryot's condition 15 years ago, we have to remark that in a statement appended to the memorandum of Mr. Shambhu Persad (see Appendix) a number of ryots are returned as owing *nothing*, at that time; in the face of the evidence collected by the Commission and drawn from the contemporary record, we cannot place reliance on this part of the statement. A ryot who did not owe more than one or two years' surplus would call himself out of debt.

The Procedure and Limitation Acts of 1859.

52. The relations of the ryot and sowkar in 1858 being such as we have shown from the contemporary record, in 1859 two enactments passed through the Legislature which have aggravated the mischiefs there complained of. These are the Civil Procedure Code and the Statute of Limitations. The consideration of the effect of these measures upon the indebted classes belongs to another branch of our subject, viz., the causes and consequences of the ryot's indebtedness; and we have now brought our review of his relations to the money-lender to the point where it requires to be treated with direct reference to the present state of those relations as illustrated by the riots. To avoid reiteration of the same topics we propose to pass at once to this subject, the consideration of which will lead us to the period immediately preceding the recent outbreak.

Causes of Debt.

Poverty.

53. Enough has been said in a previous chapter of this report to show that we are dealing with a region of a very low standard of productiveness and with a poor population. The estate of an ordinary Kunbi ryoti, exclusive of his land and its produce, has been estimated by competent authority to be of little more than Rs. 200 in selling value; it will be somewhat as follows:

	RS.
Live stock	125
Implements and utensils	20
House	50
Miscellaneous	20
Total	215

The recorded results of personal inquiry by the Commission, as shown in the Appendix, prove how many of the population are possessed of less than the above average. With the exception of the land all the items of the estate are subject to depreciation, and imply yearly charges for maintenance and renewal. The people being thus possessed of very little besides their land, what kind of income does that yield them? It has been seen that the two crops, bajri and jowari, form the great bulk of the agricultural produce; in a large portion of the area under report they constitute eight-tenths of the whole. Supposing that the rainfall was sufficiently constant to ensure a moderate return every year, it would still be inevitable that the Kunbi should draw the whole of his year's income from land in the lump during the two months of harvest. As, however, there is one year of drought in every three over much of the region, and a good crop also only once in three years, it follows that the income yielded to the Kunbi from his land is received *in full* triennially instead of annually. It is everywhere a serious aggravation of their ill fortune to the cultivators of indifferent soils that, their land yielding only one kind of produce, they receive the whole return in a lump, while better soils that admit of a variety of crop enable the cultivator to spread his receipts over six months of the year. This evil, as we have seen, is intensified for the ryots of the disturbed district by their capricious climate. It is hardly possible to conceive any conditions more certain to produce indebtedness among the poorer classes than these. When to these conditions is added the variation of the value of the ryot's produce, which leaves him in absolute uncertainty at seed time what his crop will be worth if he get one, it is apparent that no great degree of improvidence is needed to account for his indebtedness, but rather

that considerable industry supplementing the income of agriculture, and considerable frugality in living, must be presumed in order to account for the large number of Kunbis who are not burdened with debt.

Improvidence.

54. It would be idle to say that improvidence does not exist as a cause of indebtedness. It consists, however, rather in the short-sighted imprudence of an ignorant class ready to relieve present necessity by discounting future income on any terms, and unable to realise the consequences of obligations foolishly contracted than in an extravagant expenditure or misapplication of income. The results of the Commission's inquiries show that undue prominence has been given to the expenditure on marriage and, other festivals as a cause of the ryot's indebtedness. The expenditure on such occasions may undoubtedly be called extravagant when compared with the ryot's means; but the occasions occur seldom, and probably in a course of years the total sum spent in this way by any ryot is not larger than a man in his position is justified in spending on social and domestic pleasures. The expenditure forms an item of some importance in the debit side of his account, but by itself it rarely appears as the nucleus of his indebtedness. The sums usually spent on these occasions have probably been over-estimated, or the operation of other causes in producing debt have been overlooked by the officers who have attributed the ryot's burdens so largely to this cause. This oversight would indeed be a natural consequence of the fact that it is only on marriages or similar occasions that expenditure by a Kunbi comes under observation. The amount spent by a Kunbi of average circumstances on the marriage of his son is from Rs. 50 to Rs. 75, a sum which by itself, even at 24 per cent interest, could be repaid without much difficulty if his average margin of profit was not forestalled by other debt, and he were treated with fairness and moderation by his sowkar. The constantly recurring small items of debt for food and other necessaries, for seed, for bullocks, for the Government assessment, do more to swell the indebtedness of a ryot than an occasional marriage.

Inherited debt.

55. As a matter of fact the ryot's surplus is in the majority of cases already forestalled. Even those who are in fair circumstances and solvent have usually to maintain their credit by handing over all that can be spared of their crop "on account" to their sowkar, and the poorer must do so under pain of civil process. As we have seen in our review of the ryot's past condition there has never been a time when a large proportion of them were not under the burden of debt, and their present indebtedness is in great part a legacy from their forefathers, The inquiries of the Commission enable us to state with some measure of certainty that the chief cause of the present indebtedness of the ryot is *ancestral* debt.

Stimulus to borrowing given by survey settlement contemporary with stimulus to lending given by increased facilities for recovery.

56. It was hoped that the permanent title and the light assessment guaranteed by the survey settlement would so far increase the ryot's profits and stimulate his industry that by degrees he would free himself from the debt which hung round him. The increased production and the stimulus to agricultural enterprise did indeed follow as anticipated, but debt instead of diminishing increased. We have seen that the facilities for recovery of debt offered by our civil courts had called into existence an inferior class of money-lenders dealing at exorbitant rates of interest with the lower strata of the agricultural poor. As the value of the ryot's title under the survey settlements came to be recognised, and his eagerness to extend his cultivation grew accordingly, a fresh start was given to the money-lender

in his competition with the ryots for the fruits of the soil. The bulk of the people were very poor and the capital necessary for extended cultivation could only be obtained on the credit of the land and its produce; existing debt left but little margin of profit to the ryot even under the reduced rate of assessment; this margin would go but little way to cover his increased needs for the stock, seed, and assessment of new cultivation. While his return in produce for the first year or two would be but nominal, even the most cautious could not be expected to wait for accumulation or profits to take up fresh land for fear that the more wealthy or reckless should be beforehand with him, This too sudden extension of cultivation following the survey assessment was prominently noticed by Mr. Hart in 1841, and we have seen how in the Ahmednagar district it was so excessive as to cause a re-action in the third and fourth years after these settlements.

Increase of population.

57. The increase of the population taken as a sign of prosperity has been a subject of congratulation with the officers who have recently had to deal with the revision of assessment in the Poona District. It is doubtless a feature in the history of this region which as much as any other marks its changed condition during the last 30 years. The returns show an increase in population of about 45 per cent in that period, and it is possible that the ratio of increase is progressive rather than uniform, as the spread of vaccination, sanitary precautions, and facilities for medical treatment have reduced the virulence of epidemics, and improved communications have made dearths impossible and facilitated access to the markets for labour. We have seen that cultivation has reached its limit. The area of six cultivated acres per head of agricultural population must, considering the precariousness of the climate, be taken to mean that the produce of a good season of but three acres is available to each person of the cultivating class, half of the area of six acres being deducted on account of bad seasons, and the average yield being thus reduced to about half a *good* crop per annum. Comparing this with Guzerat, where the rainfall is rarely deficient, we find that each member of the ryot's family here has yearly the net produce of three acres of 8 annas assessment, while in Guzerat, each person has the produce of two acres of Rs. 2-13-4 assessment; the former paying Rs. 3, the latter Rs. 5-11, to Government, the net produce being in the case of the latter both of much higher value and having the additional advantage of not being received all at once. It has been estimated that the yearly cost of food and necessaries to each member of a Kunbi's family is about Rs. 25. Admitting that the food consumed by his family does not cost the ryot the market value, it is nevertheless plain from the figures of estimated yield of land shown in paragraph 31 that in a year of average rainfall his receipts from six acres, two of each kind of soil, will leave a very narrow margin for Government assessment and expenses, amongst which the interest on the sowkar's loans in bad years must count as a current and unavoidable charge.

Produce of land not alone sufficient for the Kunbi's needs.

The deficit which frequently exists is made up by the produce of stock and of the dairy, and by the labour of the Kunbi and that of his family and of his cattle. In illustration of this it may be noticed that the Collector of Ahmednagar reported that, owing to the drought and failure of crops in 1871, the agricultural population had to a great extent left their villages in search of labour for their maintenance. This exported labour must be looked upon as maintaining the solvency of the district, for little else is exported. The railway is not used for the export of produce. As stated by the superintendent of survey regarding the ryots of Bhimthari district, the practice is to save the surplus of a good season to meet the deficiencies

of bad years. A little produce is sent to Poona in carts for local consumption, but the food grain of the region is consumed by the inhabitants.

Industry and enterprise being discouraged by pressure of debt, production is not increased.

58. The normal effect of a pressure of population upon land is that so soon as extended cultivation has reached the limit of profitableness, the cultivating class endeavours by improved agriculture and increased industry to obtain more from the soil. This result is under the present conditions not to be looked for here; on the contrary, there is a widespread belief that land is not so productive as it used to be. That their present state of indebtedness prevents the ryots from making efforts to improve the out-turn of their land there can be no doubt. Writing of the Ahmednagar ryot more than 20 years ago, Lieutenant Burgess of the Survey says, "As long as the ryot is in the hands of the money-lender, how can he prosper being so involved. Should he do so, his prosperity would only make the usurer the richer without materially, if at all, increasing his own resources." This lesson the ryots have apparently now learnt; they find that the lands, broken up and the wells dug with borrowed capital yield a profit only to the sowkar. To use Sir G. Wingate's words, "the ryot toils that another may rest, and sows that another may reap."

App A, p. 228.

The result has been well shown in a report from the Irrigation Department dated 16th June 1875. It was found that the ryots did not use the water of the Lakh Canal, an important irrigation work in the Ahmednagar District. The Executive Engineer for Irrigation reported to Colonel Merriman, the head of his department, on this subject as follows:- "While on the canal I questioned the ryots closely, and they stated that without exception they were all deeply indebted to the money-lenders, who get as much as possible in the shape of interest on money lent out to each landholder at harvest time. They stated that a very large portion of the value of each crop goes towards paying interest on their debts, and that they are arranged from taking more trouble than necessary with the cultivation of their land; I consider it very probable that this is the reason why so little is done towards extending irrigation on this canal." The Assistant Collector in charge of the District, Mr. Blathwayt, writes on the same subject to the Collector of Ahmednagar:- "I believe the fact is that the holders of land under the Lakh Canal are generally poor. Their lands have been mortgaged to sowkars who take away the products of the fields for interest of the money lent, and the poor landholders have to trouble themselves for nothing; they have to pay for the water, but could not get the profits to themselves, and consequently do not care to use the water." On the above Colonel Merriman, the Chief Engineer for irrigation, remarks:- "The reason given by Mr. Blathwayt is a very sufficient one. The district is very thinly populated, and the indebtedness of the cultivators no doubt explains why the progress of irrigation is so slow."

Productiveness said to be diminishing.

59. Whether the land itself now yields less than formerly it is impossible to determine with certainty. Possibly the belief generally held on this point is in some measure due to the fact that, as cultivation extended until it embraced the poorest and most unprofitable soils, the general average of returns per acre diminished. The estimate of the cultivator was formerly based on the return of the better lands; he has now to include much inferior soil, but has not proportionately reduced his expectations.

The following causes, however, may have operated to decrease the actual out-turn of land in cultivation. A consequence of the payment of assessment by registered holdings instead of by

actual cultivation is the discouragement of fallows. The ryot having nothing to pay for his wastes could well afford to let his land rest and cultivate portions in rotation. During the early period of our administration, the lands of this region were, as has already been noticed, largely devoted to grazing purposes, and there was no direct Government demand upon the wastes so used. The encouragement given to cultivation by the survey was accompanied by a discouragement to grazing, through the right pasture being made subject to purchase from Government. The supply of manure from flocks and herds, the demand for which should have increased with the increase in cultivation, diminished, and doubtless with it must have diminished the fertility of the soil. The following table shows the decrease in non-agricultural stock as shown in a comparison of the census of 1843 with that of 1873 for 219 villages of Ahmednagar Collectorate:-

Cows			She-Buffaloes			Sheep and Goats		
Census of 1843	Census of 1873	Decrease	Census of 1843	Census of 1873	Decrease	Census of 1843	Census of 1873	Decrease
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
25,829	23,820	2,009	4,848	4,411	437	68,700	52,294	16,406

Thus it will be seen that, while increasing population demands more from the land than it yielded 40 years ago, the conditions of agriculture have not tended to increase its fertility, and indebtedness has taken away the natural motive to industry-the hope of gain-and thereby prevented relief from the increasing pressure being sought in improved cultivation. We are dealing now with the causes of indebtedness, and have been led to dwell upon one of its consequences; the case is only an illustration of the familiar fact that the consequences of an evil often tend to reproduce it.

Emigrations as a result of increased population.

60. Another method in which relief from the pressure of increased population might naturally be sought is emigration. The habits and instincts of the Kunbi make him most averse to leave his village except for a short absence; but we have lately seen a remarkable case in which 19 cultivators with their families, in all 66 persons, most of them inhabitants of Poona District, and many from villages in the area under report, went into Khandesh hoping to find work at Jalgaon, where there is a railway station with large traffic; failing in this they were already on their march to Indore to apply for land under H. H. Holkar, when they were met by Mr. Pollen, the Assistant Collector in charge of the district, through whose means they were settled on waste lands in Khandesh. The cause of their leaving their homes, they informed Mr. Pollen, was that "their lands had gone and their creditors were merciless." In this case it is true the emigration was directly caused by the consequences of debt, and in so far as the creditors of these men had taken from them their yearly produce of their property unfairly, so far was the pressure which forced them to emigrate due to other causes than the increase of population; but at the same time the operations of this cause is indicated. We find the natural course of events which follow that cause it their story; their early income failing, they lived on their capital until that was gone, their labour was not wanted for the cultivators of the land they had lost, and there was no other opening for them nearer home.

Conclusions as to the increase of population.

61. The conclusion which we would adopt on the subject of the increase of population as a cause of indebtness is that had the agriculture of the

district to support only its own producers including a fair interest on capital actually expended on account of the land, it would be sufficient, with the assistance of the wages of exported labour during the idle season and bad years, to maintain them at their present number, and larger returns might be obtained from the land by improved cultivation to meet a still further increase. But agriculture pays a heavy tax to the sowkar, much of which neither represents expenditure on account of the land nor ever returns to the land; such holdings as pass into the hands of the sowkar will not under hired labour support so many persons as lands cultivated by proprietors, and these holdings are yearly increasing. Revised assessments have already in a portion of this region reduced the margin of the ryot's profits and thrust the creditor's demands further upon his capital; the revision of the remaining districts will make this encroachment more general than it is at present. It is not to be expected that increasing population will produce improved out-turn; the demands of the creditor are sufficient to absorb any increased return, and the profit of labour invested will go to the sowkar to the discouragement of such investment by the ryot in future. Without such improvement in agriculture the return from the land must be expected to diminish rather than increase.

Increase of money-lenders and money-lending business

62. Another cause of the increase of indebtedness is the facility with which the money-lending class can command the assistance of the law in the recovery of debt, and consequent upon that facility an expansion of the ryot's credit, inducing numbers of small capitalists to compete for investments in loans to the Kunbi. We have already quoted Sir G. Wingate's remarks on this point; although at the present time other causes have combined to impair the ryot's credit, still one material cause of his present condition must undoubtedly be sought in the state of things described in 1852, and since that date other causes have operated to aggravate immensely the evil which was then discerned. What facilities were afforded by the law to the creditor in 1852 have been greatly enhanced by the introduction of the present procedure in 1859, and by the punctual conduct of judicial duties now exacted from the subordinate courts, while the ryot's credit has been enhanced by the addition of his land and agricultural stock and implements to the security liable for his debts.

The introduction of compulsory registration of deeds dealing with immovable property in 1865 protected the creditor from attempts to repudiate or dispute a registered bond. In the meantime the ryot's estate had risen in value, and new cultivation offered securities for new loans; his personal solvency was assured by the large demand for labour on the railway and other public works, and his title in his land was in 1865 recognised and secured by an Act, which confirmed the rights vested in him by the survey settlement. The American war from 1862 to 1865, while on the one hand it poured money into the country to seek investment, on the other hand raised to an extravagant pitch the value of agricultural securities. To the above causes tending to attract capital to the business of agricultural money-lending, we may add that in the dearth of other industries in this country, with a population whose wants embrace little but the merest necessaries, capital, which under other conditions would find employment in trade or manufactures, here naturally turns to agricultural investments, and almost the only course open to the clerk or servant who has saved a little money in a village sowkar's employment, and desires to earn an independent living, is to set up in the same business himself, preferably in the place where he is already known.

Increase in inferior kind of money-lending business.

63. The inquiries of the Commission have made it clear that the smaller class of sowkars, who are also the most unscrupulous, have increased very considerably during the last 10 years, and that it has been a common practice for the ryot to borrow from one sowkar to pay another, or to borrow from two or three at a time. A result of this is that in the competition with inferior members of their class even respectable sowkars are obliged more and more to resort to the methods of swelling the debt and coercing the debtor practised by them. We here quote again the letter of Sir G. Wingate describing the change in the relations of the parties:-

> "The prosperity of the ryot is no longer necessary to the prosperity of the village money-lender. The latter has no longer occasion to trust to the good faith or honesty of the former. Mutual confidence and goodwill have been succeeded by mutual distrust and dislike. The money-lender has the ever-ready expedient of a suit at law to obtain complete command over the person and property of his debtor. It becomes the interest of the farmer to reduce the latter to a state of hopeless indebtedness in order that he may be able to appropriate the whole fruits of his industry beyond what is indispensable to a mere existence. This he is enabled without difficulty to do. So long as a ryot is not much involved, the money-lender is ready to afford him the means of indulging in any extravagance without troubling him at all about future payment. The debt may lie over and he may choose his own time for repayment. The simple and thoughtless ryot is easily inveigled into the snare, and only becomes aware of his folly when the toils are fairly around him and escape is impossible. From that day forward he becomes the bondsman of his creditor. The latter takes care that he shall seldom do more than reduce the interest of his debt. Do what he will, the poor ryot can never get rid of the principal. He toils that another may rest, and sows that another may reap. Hope deserts and despair possesses him. The virtues of a freeman are supplanted by the vices of a slave. He feels himself to be the victim of injustice, and tries to revenge himself by cheating his oppressors. He cannot get into a worse position than he already occupies, and becomes reckless. His great endeavour is to despoil his enemies, the money-lenders, by borrowing continually. When he has got all that he can from one, it is a triumph to him if by any amount of lies and false promises he can get something more from another. When he has two creditors there is a chance of their fighting with each other, and that during the fray he may be able to snatch a portion of the spoil from both."

The Limitation Law.

64. In the process of swelling his account the sowkar has received material assistance from the Limitation Act of 1859, to the operation of which is universally attributed much of the present burden of debt. The Judge of Tanna thus writes on the subject, 17th May 1875:- "In bonds founded on old bonds which have nearly run the period of limitation, it is impossible to estimate what proportion of the consideration was actual cash payment. The Limitation Law, a statute of peace, made for the purpose of protecting obligors, is practically an engine of extortion in the hands of obligees. When a bond is approaching the age of three years, it is usual for the creditor to threaten proceedings, and so reduce the debtor to pass a new bond, of which the principal and interest of the old bond and sometimes a premium form the consideration." Again, the Judge of the Small Cause Court, Ahmedabad, writes, 1st September 1875:- "Short duration provided for in the Limitation Act, though intended to prevent frauds and difficulty of proving a case when long interval has elapsed

between execution of the note and the trial, produces great hardship, and furnishes opportunities to the creditors for cheating their debtors, The debtors belonging to agricultural or rather industrious classes are harassed every two years for a new bond or payment of money. Creditors always leave a margin, of one year as a measure of precaution. *If the law makes three years, they always make it two, because they may have to go to another place, or the debtor may go elsewhere.* * * * The two years is not a sufficient time within which a cultivator can pay money. Perhaps it was borrowed for his son's marriage, or for planting sugar cane or making a garden, and will require six or seven years to pay the debt." The uncertainty of the seasons in the district under report of course makes it less suited than the average of districts for a law compelling settlement of accounts at short dates. On the subject of the effect of the Limitation Law as a cause of increasing debt, we invite attention to the illustrations contained in the accounts appended to the memorandum of Mr. Shambhu Persad Laxmilall.

The revenue system.

65. It is evident that a revenue system which levies from the cultivators of a district, such as that now dealt with, the same amount yearly without regard to the out-turn of the season, must of necessity lead to borrowing. In bad years the ryot must borrow. The necessity remains even when the assessment is fixed far below the standard of a fair season, for his creditor would not allow him to retain the savings of a good year even if he were prudent enough to desire to do so. How the levy of an assessment representing an average operates in his case was well illustrated to the Commission by a popular fable exposing the fallacy of applying a standard of averages in unsuitable cases. A man, it was said, desired to ford a river, and inquired the depth at various distances across; in some places the stream would be over his head, at another point but ankle deep, and so forth; finding the average to be within his depth, be attempted to cross, and was of course drowned, Thus the first year of drought which finds the ryot under an inflexible revenue demand will surely lead him into debt, and for every rupee paid into the treasury be will probably pay three or four to his sowkar.

App. C., p. 69.

The Appendix contains the notes of evidence collected by the Commission regarding the village of Ghospuri, in the Ahmednagar District. In this village the kulkarni family have set up business as sowkars within the last seven years, and now have claims amounting to about Rs. 11,000. In their examination by the Commission they state that they had got into the position of supplying the people generally with all their needs, cash and the assessment, &c., and that during the period of high prices and under the former revenue assessment the people had no difficulties; in 1870 the village, which had been under the revenue management of H. H. Scindia, was assessed, and "the revenue was managed strictly, not as before with balances left outstanding, so the people were pushed and there was a difficulty in meeting their debts." We do not ascribe the growth of the Ghospuri ryots' debts so much to the rigid revenue system as to other causes; but the system plainly ranked as of importance in the opinion of these sowkars, and it is beyond doubt an element in the causes of embarrassment.

Effect of the American war.

66. Although the high prices of produce during the American war from 1862 to 1865 were balanced for the ryots of the disturbed district by a series of bad seasons, still the ryots drew large profits from the competition for labour by migrating for a time to Poona or Bombay, where the labour available was employed at extravagant rates. The monthly wages of a common coolie in Bombay rose from its. 7-12-0 in the period of

1860-62 to Rs. 13-8-0 in 1863. During the construction of the railway about 25 lacs of rupees were spent in the area of the disturbed villages in payments such as would remain in the district. Outside the district itself, but only 60 miles distant, the works on the Bhor Ghat gave employment to thousands; one contractor on a line of 14 miles employed nearly 40,000 labourers. Following on this after a short interval came an increased expenditure on public works, rising in 1868-69 to about 31 lacs on public works and irrigation in Poona district alone. During the years from 1862 to 1867 the cantonment of Poona was the scene of extraordinary activity in private building operations, some on a very large scale, and the sums spent on ordinary labour in these works could not have been much, if at all, less than those spent by Government in the same area. But, besides the advantage of high wages, the agricultural population drew a more questionable advantage from their position as landholders. Through the immense stimulus given to the production of cotton and the cheapness of money, agricultural produce and land had attained an extravagant value, and the ryot's powers as a borrower were those of a capitalist rather than a labourer. The following paragraph occurs in a letter of 26th July 1864 from the Government of Bombay to the Government of India on the subject of the high prices then ruling in the presidency:-

> "There never was a time during the known history of Western India when land suitable for the growth of grain was in greater demand than during the present period of high prices of unskilled labour. It may be said with almost literal truth that not a thousand acres of land which has been cultivated within the memory of man are now to be found uncultivated in the districts of the Deccan and the Konkan, whence the unskilled labour and the grain which feeds it in and about Bombay are mainly drawn."

The suits connected with land in the Ahmednagar District Civil Court are returned as follows for this period:-

	1861	1862	1863	1864	1865
No. of suits -	318	354	449	497	689

Similar suits in the Poona District were as follows :-

	1861	1862	1863	1864	1865
No. of suits -	282	591	520	580	632

In the year 1851 there had been 98 cases under this head in Ahmednagar, and 75 cases in Poona. The civil prisoners of the district of Ahmednagar who had, as previously stated, averaged 29 in number from 1860-3, numbered 6, 3, and 9 during the years 1864, 1865, and 1866 respectively.

The increase in the value of land is illustrated by the rapid growth of litigation regarding it, and the increase in the ryots' credit is shown by the decrease in the compulsory processes for recovery of debt. Thus though the ryot's land in the disturbed region brought him little actual income during this period of fabulous prices but scanty crops, it nevertheless brought him the fatal gift of almost unlimited credit destined soon again to collapse.

Summary of causes of debt.

67. We will here enumerate the causes of indebtedness shown in the foregoing paragraphs:-

1. Poverty associated with an unproductive soil, precarious, climate, and irregularity in the receipts of income both as to period and as to value.
2. Ignorance and improvidence.
3. Extravagance.
4. Ancestral debt.
5. Expansion of credit associated with the stimulus to agricultural enterprise caused by the survey settlement.
6. Increase of population, while the return from land was not increasing.

7. Facilities for borrowing owing to the number of competing money-lenders attracted to the business by the advantages offered to the money-lender by our law and other circumstances.
8. The Limitation Law as leading to renewals on usurious terms.
9. The revenue system of a fixed demand associated with the variations in the seasons.
10. The temporary inflation of credit during the American war accompanied by an enormous increase of capital seeking investment.

It is not intended to place these causes in the order of their relative importance, and it will be seen that some of them (1, 2, 3, 4) have been from the earliest times marked features of the condition of the peasantry with whom we are dealing; the rest are of more recent growth, and, with the exception of the last, are associated more or less with our laws or administration.

The Period preceding the Riots.

68. The foregoing review of causes contributing to the ryot's indebtedness has brought us down to the period immediately preceding the riots.

Relations of sowkar and ryot in the years 1867-75. Contraction of credit.

With the close of the American War in 1865 the flow of capital into the country ceased. Prices of produce did not fall immediately, however, but the season of 1866-67 was one of severe drought and that of 1867-68 of partial failure, and the effect of contracting credit following the stoppage of the flow of capital began to be felt in 1868. Prices fell quickly after 1870-71. The following figures illustrate the rapidity and extent of their decline:-

Prices in Poona Market (seers per Rupee).			Prices in Indápur Market (seers pee Rupee).		
Years	Jowari.	Bajri.	Years	Jowari.	Bajri.
(1)	(2)	(3)	(4)	(5)	(6)
			1865-66	18	15
			1866-67	25	18
			1867-68	37	25
			1868-69	28	21
			1869-70	26	21
1870-71	13	16	1870-71	28	26
1871-72	10	13	1871-72	22	20
1872-73	15	20	1872-73	30	25
1873-74	21	27	1873-74	49	31
1874-75	20	26	1874-75	45	35

Simultaneously with the fall in prices other causes contributed to affect both the ryot's credit and his power of payment. The large expenditure in public works, which from the time of the construction of the railway down to 1871 had subsidized the district with large sums in wages, was suddenly contracted. The expenditure in the Public Works Department and Irrigation Department in Poona District, which, as has been shown, was 31 lacs in 1868-69, in 1873 had fallen to about 11 lacs. Beside the drought of 1866-67, and the partial failure of the season following, there was serious failure of crops in 1871. Just at this crisis for the indebted ryot the work of revision of assessment in the Poona District commenced, and by enhancing the Government demand reduced materially the margin available to the sowkar.

69. Under the ryotwari system of the Bombay

Presidency the assessment is paid by the cultivator directly to Government. In 1836-37 the assessment by survey and settlement was commenced. The land was divided into fields which were classified according to their quality, the assessment was then imposed according to the classification, the amount of the demand being determined by the experience of former years. The cultivators were recognised as holding their occupancies by a heritable and transferable right, and the assessment was settled for a term of 30 years.

The first taluka settled was Indápur in 1836-37, and other talukas of Poona and Sholapur followed in 1840 and 1841.

Owing to the expiry of the term of 30 years, the settlements have been revised in the period from 1869 to 1872. The following table shows the effect of the revision in the talukas in question in Poona District:-

Taluka.	Former demand.	Revised demand.	Increase.
(1)	(2)	(3)	(4)
	Rs.	Rs.	Rs.
Indápur	81,184	125,845	44,661
Bhimthari	81,475	133,131	51,656
Haveli	80,475	133,174	52,699
Pábal	92,350	139,315	46,956
Súpa	59,926	78,788	18,862

Owing to the failure of crops in 1871 large remissions were granted in that year, and owing to other causes the revenue actually levied in the revised districts was not increased to the extent shown in the above figures, but the general result of the new settlement was to make a large retrenchment from the ryot's profits. It may be mentioned that the enhancements above shown were reduced considerably in 1874 owing to the continuous decline in prices.

Contraction of credit, illustrated by registration returns.

70. The effect of the fall in prices, aggravated doubtless by the circumstances just enumerated, was, first, to reduce the ryot's power of payment; secondly, to cause creditors to seek recovery of debt by all means in their power or to enhance their security by the conversion of personal debt into mortgage of land; and lastly, to check further advances to the ryot. The returns of the Registration Department show very clearly how severe has been the pressure upon the ryots in the disturbed districts during the six years preceding the riots. As the returns of the Registration Department for the year 1868 do not admit of the figures for that year being cited for the Poona Districts in totals, we will cite first the figures for the period from 1869 to 1874 in the two talukas in which they are most striking. We find the following return of deeds of sale and mortgage of immovable property in the Indápur and Bhimthari Talukas:-

	1869	1870	1871	1872	1873	1874
Bhimthari	581	712	689	793	888	610
Indápur	293	483	519	581	526	216
	874	1,195	1,208	1,374	1,414	826

The deeds of the same character registered in these two districts together in the years 1866 and 1867 numbered 752 and 591.

As subordinate to these totals it should be noticed that the increase in the number of deeds registered for values of less than Rs. 100, the registration of which is not compulsory by law, is still more remarkable. Registration has generally the effect of estopping the executant from contesting a claim brought on the deed registered. The sowkar therefore will, if possible, obtain registration. The deeds so registered show the following figures :-

	1869	1870	1871	1872	1873	1874
Bhimthari	112	189	199	199	224	155
Indápur	61	132	151	140	103	49
Total	173	321	350	339	327	204

In the Ahmednagar district a similar process is indicated by the Registration returns, a continuous and growing demand upon the land both as security in mortgages, and for satisfaction of debt by sale. The increase in sales is a convincing proof of the pressure brought to bear upon the landholding class during these years of declining credit. The following figures show the registered deeds relating to immovable property in the disturbed districts of Ahmednagar during the years above noted:-

	From 1865 to 1868				From 1868 to 1874			
	Sale		Mortgages		Sale		Mortgages	
	No.	Value Rs.	No.	Value Rs.	No.	Value Rs.	No.	Value Rs.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Nagar	765	2,79,947	1,979	5,74,577	1,544	5,52,013	2,927	8,62,364
Shrigonda	301	52,874	1,596	2,97,397	473	80,390	1,022	2,80,592
Párner	280	64,604	1,297	2,73,912	367	81,538	1,427	3,97,575
Karjat	27	3,660	75	14,725	484	70,498	1,304	2,34,513
	1,373	4,01,085	4,947	11,60,611	2,868	7,84,439	6,680	17,75,044

In the dealings between sowkar and ryot the mortgage of land is the last stage but one; its actual transfer is the last of all. The value entered in the Registration returns represents the amount of the debt on paper at these final crises, and is a measure, not of the actual value of the property, as has been assumed by the survey officers, but of the amount of the sowkar's claims against the landholder. The increase in these values during the period under consideration will therefore afford a good criterion of the degree of encumbrance laid upon the ryot's capital, or extinguished by its transfer. The following figures show these values in the districts of Bhimthari and Indápur:-

Year	Bhimthari		Indápur		Total
	Sales	Mortgages	Sales	Mortgages	
(1)	(2)	(3)	(4)	(5)	(6)
1869-70	11939	85489	9425	47147	154000
1870-71	28830	103494	23704	70656	226684
1871-72	26981	110284	18044	74595	229904
1872-73	16616	134516	25624	85562	262318
1873-74	38319	138752	30167	75331	282569
1874-75	32222	77970	14592	27832	152616
Total	154,907	650,505	121,556	381,123	1,308,091

Editor's Note: Sale figure of Indápur for 1869-70 is wrongly printed, in the original Report as 1425 as may be chcked from the vertical and horizontal totals. It should be 9425.

App. C. p. 317.

A return is given in the Appendix of deeds relating to immovable property in the disturbed villages of the Bhimthari Taluka from the first commencement of registration, which illustrate the growing pressure still further by comparison with the transactions of years previous to 1867-68.

The following figures show the number of registered transactions in those villages for the years 1865 to 1875 and the values in totals:-

Year	Mortgages		Sale		Total	
	No.	Values (Rs)	No.	Values (Rs)	No.	Values (Rs)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1865	14	7037	4	2700	18	9737
1866	18	6624	9	2104	27	8728
1867	28	9594	6	1089	34	10683
1868	37	16826	7	2423	44	19249
1869	66	18779	24	3546	90	22325
1870	86	22868	21	3990	107	26858
1871	73	16992	22	5710	95	22702
1872	63	14556	36	6888	99	21444
1873	97	28744	44	6271	141	35015
1874	64	20297	18	5827	82	26124
1875	13	2508	7	936	20	3444
	559	164,825	198	41,484	757	206,309

It must be noted that instances of the redemption of mortgage are almost unknown; a mortgage is equivalent to the transfer of the ryot's title; his interest in the mortgaged land, where as is usual he remains upon it as cultivating for the mortgagee, being that of a tenant at a rackrent.

The above returns show that the pressure increased up to 1873-74 and then suddenly declined. It is apparent that the strain had been relieved by the sacrifices indicated in the figures above, added to the deductions from the ryot's capital made by execution of decrees, which will be noticed below.

Civil Courts' returns.

71. In the returns of the Civil Courts we find the same features presented. As has been already stated, suits for debt in Poona District averaged about 6,000 during the five years from 1862 to 1867. The following are the figures for the years after 1867:-

	1868	1869	1870	1871	1872	1873
No. of suits -	6,972	6,684	14,742	6,738	13,788	13,986

The very marked decrease in 1871 is to be accounted for by the drought of that year. A dearth of agricultural produce is accompanied by decrease in suits for debt, there being no assets to recover; the creditor only sues on expiring bonds of which he cannot get renewal. The Small Cause Court at Poona has jurisdiction in a district which was but slightly affected by the drought of 1871. Its returns are as follows: -

	1868	1869	1870	1871	1872	1873
No. of suits -	6,848	7,454	8,771	8,429	9,449	9,774

In the Court of Talegaon in the disturbed district of Poona, the number of suits rose from an average of about 1,400 in the years 1865-67 to an average of 2,500 in the years 1872-3-4. It is an unfortunate circumstance that, owing to a re-distribution of jurisdictions in 1869, the returns of Ahmednagar civil business do not allow us to compare the figures of judicial returns before and after that year. The Ahmednagar Small Cause Court returns, however, show the usual increase of business during the years of reaction, and it is worth while to notice the large increase in the number of applications for execution of decrees in Ahmednagar and in their incidence upon immovable property during the years from 1870 to 1874. The numbers are as follows:-

Year	No. of Decrees	For attachment of immovable property	For Sale of immovable Property
(1)	(2)	(3)	(4)
1870	17,277	1,282	1,015
1871	16,855	1,208	1,630
1872	14,381	1,166	8,335
1873	25,782	2,915	1,907
1874	19,549	2,608	1,786
Total*	93,844	9,179	14,673

* Editor's Note: Totals corrected.

In the same manner in the Poona District applications for execution rose from 12,502 in 1868 to 28,894 in 1873, and the sum realised by sale of immovable property from 91,071 to 169,127. It must be noted that the value of such property is in no way represented by the sum realised, which is often, for reasons which will be stated hereafter, only a fraction of the value.

The revenue returns.

72. During the same period there has been a very marked increase in the difficulty of collecting the land revenue not only in the Talukas of Poona where the enhanced assessments pressed directly upon the monied classes, who were able to organize and Sustain resistance to the demands of Government, but in other Talukas, and in Ahmednagar, the period from 1868-69 to 1873-74 was marked by an unusual amount of remissions and arrears.

App. C., p. 276. Decrease in cultivation.

73. At the same time the area of cultivation contracted all over the Presidency, wherever the

poorest soils had been brought under the plough during the period of artificial prosperity from 1862 to 1866. In the Appendix will be found the opinions of Revenue officers connecting this decrease in cultivation with the pressure of debt. A decline in prices so serious as that of the last four years must by itself be expected to reduce the area of cultivation, but the ryot is very loath to abandon land in which he has invested his labour, so long as it will yield the smallest return. A return can only be secured from the poorest soils when the entire surplus above wages is left with the cultivator. When heavily indebted the cultivator will not be able to secure this. The Government has lately received a report on the declining prosperity and receding cultivation in the villages recently colonised in the Pal Tapa, District of Khandesh, which well illustrates the effect of indebtedness upon agriculture. It is found on reference to the villages paying rental *in kind* to Talukdari estates which form a large portion of Northern Guzerat that cultivation in them is not decreasing; in them the ryot has no proprietary rights, and has consequently little credit, and he has also but little debt compared with the cultivator under the ryotwari tenure. Besides this mass of indirect evidence we have the direct evidence of sowkars in the disturbed districts that their business has been reduced to the lowest point for some time past.

CHAPTER IV. - THE EXTENT AND NATURE OF THE INDEBTEDNESS OF THE RYOTS.

Resume of previous chapters.

74. In the foregoing pages we have endeavoured to show that the normal condition of the bulk of the ryots in the disturbed districts is one of indebtedness; that, owing to causes, some natural and others the result of our administration or of internal circumstances, this indebtedness had grown to an extreme point during the 20 years preceding the riots; that many years ago elements of danger to the public peace were detected in the temper of the ryots smarting under the consequence of his debts; lastly, that these consequences, averted for some time by the transient prosperity of the American war period, returned with multiplied force during the six years preceding the riots.

Subjects of following chapters.

In the following pages we shall endeavour as briefly as possible to show the extent of the indebtedness as it at present exists, the nature of the dealings between sowkar and ryots, the bearing of our law upon their relations to one another, and the particular points which, by giving rise to a sense of hardship, constitute the elements of danger of which we have lately had warning.

Extent of Indebtedness.

75. The extent of serious embarrassment through debt can be ascertained with fair accuracy from the inquiries of the Commission. It appears that about one-third of the occupants of Government land are embarrassed with debt, that their debts average about 18 times their assessment, and that nearly two-thirds of the debt is secured by mortgage of land. For 12 villages the results in figures are as follows :-

Analysis of embarrassments in 12 villages.

Total number of Government occupants		1,876
Number of Government occupants embarrassed		523
Assessment payable on their holdings	Rs.	10,603
Amount of debts on personal security	Rs.	1,18,009
On mortgage of land	Rs.	76,233

The proportion of khatas indebted to the total number of khatas in these villages is 28 per cent. The total debt is more than eighteen times the assessment. Of the occupants in embarrassed circumstances, about two-thirds hold land of less than Rs. 20 assessment.

These figures entirely confirm the opinions stated to the Commission on the subject by the local officers; and tally in great measure with the results of investigations into indebtedness in other districts. It must be noted that the amount of his assessment is not an absolute standard of a ryot's solvency. Many cultivate the lands of Wattandars or Inamdars in addition to their Government holdings, and the assessment does not show any addition for well irrigation, though the share in a well is a property of some value, and as such much sought in security for debt. Of the cultivators not included among the embarrassed class, some are in good circumstances, but the lowest stratum is but little removed from embarrassment; continuous bad seasons or further fall in prices would rapidly swell the proportion of embarrassed to solvent ryots, for there is no hard line between the 28 per cent involved and those above them.

App. C., p. 198.

76. The extent to which land has been lost to the cultivating class cannot be determined with accuracy, for much land is held in mortgage, of which the occupancy is not transferred to the sowkar. In the village scrutinised by the Commission in the Ahmednagar District, it was found that about one-eighth of the occupancies had on an average been transferred to sowkars, viz., that the direct assessment payable by sowkars for land was about one-eighth of the whole demand on the village, but this only represents the amount of land in their occupancy as Government tenants. The increasing extent to which land is passing from the Kunbi to the sowkar has been illustrated above by the properties of the moneylenders' khatas.

App. C., p. 181.

The statements in the Appendix show that these properties have been acquired, within the last 20 years, and for the most part within the last 10 years. In 1854 there were six suits on mortgage bonds of immovable property in the Court of Talegaon in-the disturbed district of Poona, of which four were against Kunbis; in 1872 there were 192 suits of this description, of which 143 were against Kunbis. In the other courts having jurisdiction in the disturbed portion of Poona three decrees were issued on this class of suits in 1854, of which two were against Kunbis; in 1872, 98 decrees issued, of which 69 were against Kunbis.

App. C., p. 246.

The case of individual sowkars brings out this feature of our subject in a more striking light. Tularam Karamchand, of Parner, had no land when he commenced business between 30 and 40 years ago; he has now land paying Rs. 604 in his occupancy, with much more mortgaged without transfer of occupancy. This land was valueless before the survey, and his property of about 1,000 acres must have been accumulated during the last 20 years. Chandrabhan Bapuji, of Parner, similarly has accumulated land of Rs. 923-7-7 assessment by actual transfer of occupancy. Seven sowkars of the village of Kashti have acquired in occupancy right lands paying Rs. 323 during the last 10 years. Fatehchand Marwari, of Balandi, says he has about Rs, 225 to pay for assessment. It is ascertained that the whole of the land in his occupancy has been transferred to him within the last 12 years. It is, however, unnecessary to multiply examples, as the returns of the registration department quoted elsewhere show the rate at which the Kunbi's land has been going out of his possession and into that of the sowkars.

The real value of a ryot's occupancy.

77. It is difficult to ascertain with any certainty the selling value of ordinary ryots' occupancies in the region under report. There are few *bonâ fide* sales, for cash; the returns of the Registration record as shown above are valueless for this purpose, and the revenue sales of defaulters' holdings are for other reasons little more reliable.

The estimate may perhaps be hazarded that an average of seven years' assessment of dry-crop land would be a good price to the seller at present. Irrigated land would fetch a much higher price, possibly up to 15 or 20 years' assessment. Taking the debt of the 12 villages dealt with above, Rs. 194,242, we find it is due from occupancies of Rs. 10,603 assessment; a liberal estimate of the selling value of these occupancies would not exceed an average of 10 years' assessment, and it is plain that the debt is nearly double the capital value of the land to an ordinary purchaser. The solution of this apparent anomaly is that the amount of the debt as represented in the bonds held by the sowkar is far more than the real value of the consideration which has passed, and the sowkars in no case expect to be paid in full; secondly, that the ryot's land is often more valuable as security to the sowkar than it is as an ordinary investment to a purchaser, for, through the great reluctance of the ryot to sever all connection with his land, the sowkar is able to exact more than the ordinary rent; and thirdly, the land is not the only security which the sowkar holds; the law gives him a command not only over the debtor's movable property, but over his labour, and, the labour of his family.

The nature of the dealings.

78. The nature of the dealings between sowkar and ryot is so copiously illustrated in the Appendix that a brief sketch here will suffice. It will be noticed that the transactions are all conducted by means of bonds; an account current is hardly known. There is usually a debt of long standing, probably inherited, the interest of which makes a yearly debit. Beside this debit there are the retail transactions called in the vernacular "give and take," meaning that the debtor delivers his produce, or as much of it as he is obliged to deliver, to his creditor, and the creditor supplies his needs, clothing, assessment, seeds, food, and cash for miscellaneous expenses. Every now and then a larger item appears on either side, a standing crop as yet unripe is perhaps sold after a valuation either to the creditor himself or another, - the creditor in the latter case getting the price paid, - or a pair of bullocks or cow and calf are given to the creditor on account; against this the debtor draws occasionally a considerable sum for a marriage, for the purchase of land or bullocks or a standing crop, or for the digging of a well. Bonds are continually passed as the account progresses; sometimes a bond is taken as a deposit, and the debtor draws against it; or a small transaction is included in a larger bond and, the debtor is to draw against the balance.

Sowkars' accounts.

79. Marwari sowkars keep accounts, but often only in the form of a memorandum book; money-lenders not belonging to the trading classes often keep no accounts, but with all the bond is the recognised record of the transaction. Bonds are never or very rarely made for large amounts. When a large amount of debt has to be reduced to paper several bonds are drawn, thus a debt of Rs 175 will be, represented by one bond of Rs. 100, another of Rs. 50, and a third of Rs. 25. Probably the chief object of this arrangement is that the sowkar may have means to get a decree without much cost. A decree of Rs. 25 bond will usually give him the power over the debtor that he requires to compel him to meet demands on account of the entire debt of Rs. 175, and will not cost so much. Moreover, interest usually ceases on a bond being converted into a decree and it is not to the bondholder's advantage to take a decree for the whole debt.

Mortgages of land.

When the debt has reached an amount for which the ryot's personal security is not sufficient, it is commonly converted into a mortgage of land;

where the ryot possesses a well or a share in a well, the well or share, together with the irrigated land, are preferred as security.

Joint security.

Sometimes a joint security of another ryot of substance is added to the personal bond; in such cases the joint surety usually has a direct interest in the loan, or as a near relation assists the debtor, or his security is purchased by private arrangement.

Other mortgages.

Often before the mortgage of land is resorted to there is a mortgage of the debtor's house, bullocks, crops, cart, or other movable property. When bullocks are mortgaged the debtor has to pay for their hire, which thus becomes the interest of the loan.

Transfer of occupancy.

When the mortgage of land is completed it is usual in the Ahmednagar district for the right of occupancy to be transferred to the creditor in the Government books. This is not the case in Poona. It is not easy to trace the cause of this difference in the practice of the two districts, but it is probable that the assessment being lower in Ahmednagar, there is more to be got out of Government land, and the Marwari who has almost a monopoly of money-lending in Ahmednagar is harder and more exacting in his terms than the sowkar of the Poona district while at the same time the ryot is, if possible, more ignorant and helpless. It is not uncommon for the Ahmednagar ryot to continue paying the assessment of his land after he has transferred the right of occupancy to his mortgagee.

Mortgage tenants.

80. When the land has been transferred by mortgage the sowkar almost invariably commences by leaving the debtor in occupation as tenant, and a form of mortgage exists in which the profits of the land really are all that is mortgaged, as the tenant is left in possession without any transfer or acknowledgment of the mortgagee's right, so long as he delivers the produce yearly. On a failure of the debtor to deliver the produce the mortgagee usually obtains possession. Sometimes the produce of the land is made to represent the interest of the loan; but more usually a specific rate of interest is cited in the mortgage bond. The debtor holds as tenant on every variety of terms and conditions. Often these are reduced to writing; either a lease or a deed of partnership (as the vernacular name runs), or a simple contract, where a rent in money is stipulated. Often it will be found that the rent is adjusted to cover the interest agreed on in the mortgage bond. As the amount of capital in the mortgage bond is usually more than the value of the land at 12 per cent interest, and as the rate of interest in the bond is usually at least 18 per cent, it follows that the land will not yield the required sum, and thus the mortgage constantly receives the full actual rent of the land and in addition exacts bonds for the yearly deficit. Often the rent is settled in *kind*, and the rates are mainly determined by the power of the mortgagee to screw his tenant. One mortgagor tenant in his statement used the following words: - "I cultivate the land, but I have, *no right* to take for my use any of the produce of the field". Doubtless, under the hardest conditions, the tenant *does* take something, as was admitted by another ryot; Who was bound to hand over the entire produce of a field to his sowkar; on the other hand, much land is held by mortgagor tenants in Poona at the usual rental terms, viz., half of gross produce of dry-crop and one-third of irrigated lands; the mortgagee paying the assessment, and seed and expenses being shored in the proportion of their respective interests in the crop. In

Ahmednagar the sowkar has more power over his debtor and trusts him less, and regular contracts as to rent are not so usual, but the tenant is expected to pay the assessment and expenses and hand over the rest of the produce. One regular contract is in evidence under which the mortgagor tenant had to pay the assessment and half the crop of irrigated land. Considering the expenses of such cultivation, this means tenancy with insufficient wages. On the other hand, a mortgagor tenant, whose bond was backed by a good security, got his land to cultivate at one-fourth the produce, assessment and seed being supplied in the proportions of the landlord and tenant's interests in the crop. When the tenant pays in kind his payments may exceed the amount of interest stipulated in the mortgage bond, but he keeps no account of such payments, and the creditor was found in all cases inquired into by the Commission to have no conception of his responsibility for accounts on this head. As the responsibility cannot be enforced by the ryot, it practically does not exist. Doubtless most mortgagee landlords have an account, but the ryot cannot get it without going to court, which to him is out of the question. Another form of mortgage, which is usually entered into only when the parties have come to a final settlement, is the transfer of the land to be enjoyed for a certain number of years in satisfaction of debt (*vivum vadium*); it is usually found, however, that before the period has expired the mortgagee has established claims giving him a further lien on the land.

Instalment bonds.

A similar method of settlement by an instalment bond is gladly accepted by a debtor, but here again the failure to pay one instalment in a bad year usually gives the debt a fresh departure. As above stated, the sowkar as mortgagee landlord usually allows the ryot to cultivate the mortgaged land, and as long as the ryot is left in this relation to his fields he accepts his fate without much bitterness. It often happens, however, that owing to default in payment by the tenant, or to better terms being offered by another, or to the cattle and implements of the tenant being sold in execution of a decree, it ceases to be the interest of the mortgagee to leave the cultivation in the tenant's hands, and the land is then taken from him.

Labour bonds.

81. Beside the security of the ryot's personal credit, stock, and movables, house and lands, and the joint security of a surety, the labour of the ryot is also drawn into his dealings with the sowkar. This form of bond is not uncommon in Ahmednagar, the terms being that the debtor is to serve the sowkar and that his wages are to be credited at the end of the year, or that a certain sum is to be worked out by service to the sowkar for a certain period. Sometimes the wife's labour is also included in the bond.

Stipulation regarding receipts in bonds.

It an almost universal practice to enter in bonds that " no payments are to be alleged by the debtor unless they are certified by a receipt under the creditor's signature", or "that on payments being made the bond holder shall pass a receipt". As no instance has come to notice of a creditor giving a receipt for part payments, it must be presumed that the former stipulation is inserted in order to deter the debtor from pleading part payment when sued, and the latter stipulation to satisfy the debtor's desire to have something in the bond which shall make it the duty of the creditor to pass receipts.

All dealings are reduced to bonds.

One of the most noticeable features of these sowkars' dealings is the peculiar system of retail business which reduces all transactions, even the most trivial, to the form of written contracts. This system does not prevail to the same extent in other

parts of the presidency, where the account current is kept open until the balance has reached an amount which makes further security desirable. The invariable use of bonds in the region under report is probably, the result of the more precarious character of the ryot's assets, due to his greater poverty and to the uncertainty of the climate, and it is an indication of the extent to which the character of ordinary trade transactions has been affected by their alliance with a money-lending business, much of which is unsound. The ryot is constantly in great need, and has thus most limited choice in his means of relief. The sowkar is sharp in business and fully understands the weak side of the Kunbi and the urgency of his necessities. The terms upon which they deal are that every debit is to be protected by a bond giving the sowkar unlimited powers of recovery, and that the credit side is to be left to the honesty of the creditor.

CHAPTER V. THE CAUSES OF HOSTILITY BETWEEN THE RYOT AND THE SOWKAR

82. We come now to consider the causes which have produced a feeling of hostility on the part of the ryot towards the sowkar. A condition of indebtedness would not of itself produce such a feeling. The needy man might be expected to regard the person who supplies his needs rather with gratitude than dislike. It is only when indebtedness is attended with circumstances which produce in the mind of the debtor a sense of hardship, of unfair treatment, of being oppressed and having no redress, that a feeling of hostility is aroused such as led in the present instance to actual violence. We propose to examine in this chapter those incidents in the dealings of ryot and sowkar which may be thought to contribute to produce these feelings, to inquire how far these causes have or have not been efficient, and to consider whether, if efficient, they are removable or remediable. We propose to examine our subjects under the following heads:-

I. -Usury.
II. -*Ex-parte* decrees.
III. -Excessive powers of realising debts.
IV. -Loss of land by private sales.
V. -The Limitation Law.
VI. -Frauds.
VII. -The action of the Civil Courts.

I - USURY.

(a)-Are the rates of interest usurious?

83. The taking of usurious rates of interest is commonly assigned as one of the ways in which the sowkar deals unfairly with the ryot. In considering this question, the first point is to define what usury means. The rate of interest chargeable upon a loan, in excess of the ordinary return to capital, is determined by the risk as to repayment. The risk in each case depends upon the assets and character of the debtor. Usury means the taking of higher interest than is required to cover the risk. It cannot be said of any given rate of interest that it is usurious merely because it is high. A rate of 12 per cent may be usurious to one debtor, while a rate of 24 per cent may not be usurious to another. The question then to consider is whether the rates of interest taken by the sowkar are usurious in this sense. Most of the bonds are made absolutely without any security being mentioned, although, no doubt, the creditor looks to the property a man has in fixing the rate of interest he demands. Where the loans are secured by mortgages on land, the average rate in Haveli Taluka during the last five years varied from Rs. 19.2 in 1871 to Rs. 13.8 in 1875 per annum. In this taluka specially favourable conditions as to landed property exist; in less favoured districts the rate of interest on mortgages is not uncommonly 24 per cent. These rates would be undoubtedly too high if the value of the land was sufficient to cover the amount of the debt but it is well known that mortgage loans in India are not limited to the amount of the ascertained clear value of the property. The land is taken as security

only so far as it will go. It is impossible therefore to say that these rates, although secured by mortgage land or usurious. The usual rate on personal security, is 37 1/2 per cent (1/2 anna in the rupee per mensem); as no security capable of valuation is given, it is impossible to say that this rate is too high. One man, Kusbi bin Geno, says that for a loan of Rs 75 he mortgaged a house and land worth Rs. 500, and paid interest at the rate of 37 1/2 per cent. If true, this is no doubt usurious, but there is nothing to show whether the property is worth so much as he says, and if so, whether it is entirely his own or not. In another case, that of Vithoba Sadoba, a loan was obtained at 12 per cent and no security given. As the man, from his own story, is deeply in debt, the rate is apparently excessively low. On the evidence generally it is impossible to come to any definite conclusion as to the fairness or unfairness of the rates of interest, as the accounts are vague and for the most part unsatisfactory in regard to the value of the property and even the amount of debt and interest and the security offered.

The terms on which grain is advanced at seed time are usually that for one maund at seed time one maund and a half shall be given at harvest, say six months afterwards; in some cases the terms are more favourable, in other cases the advance is made to be repaid two-fold. These conditions at first sight appear exorbitant, but when the probable difference in the price of grain at seed time and harvest is considered, it will be apparent that they are not so. If a maund of bajri at seed time is worth a rupee and half, and at harvest time is worth only one rupee, the additional half maund of interest brings no profit. Doubtless the native rule* which allows twice the principal to be recovered from the debtor in money and three times the advance in grain was made in recognition of the variation in value of produce. When, however, the grain rates are converted into money-interest on the selling price of the grain at seed time, as is sometimes done by the sowkars, the charge becomes unreasonable.

84. There is, however, another way of looking at the question. If the rates charged are higher than are required to cover the risks, the trade of the money-lender must be unduly profitable. Is there any evidence that this is the case? It may be pointed out here that the risk which determines the rate of interest in the transactions of the sowkar and ryot is the risk on the aggregate of transactions rather than on each individual case. It is true that the better class of debtors can obtain somewhat more favourable terms than those below them, but for the great mass of indebted ryots, the 28 per cent of occupants mentioned in the last chapter, the rate is tolerably uniform, and for those above them on the scale the rates are far above the ordinary returns of trade. But, on the other hand, the nature of the security must be considered. The sowkar's object, as we have seen, is to obtain the ryot's produce; he makes advances against this security; he does not desire to obtain the land unless the profits from land are exceptionally high, as in the lowly-assessed district of Ahmednagar, or unless owing to the competition of other creditors the return to be made out of his debtor is less than that recoverable from the land, So long as the sowkar has a monopoly of his debtor, he can secure not only the profits of his agriculture, but somewhat also of his labour; when his monopoly is infringed, he takes the land and reluctantly abandons the rest. The produce of the ryot's land is the sowkar's security. We need only refer to what has been written above on this subject to show how very unsatisfactory a security these profits are. When it is remembered that this security is entirely in the hands of the debtor, and beyond the power of the creditor even to watch over, it must be admitted that a very high rate of interest is justified by the risk. But to this, so to speak, legitimate risk is added the further danger of loss through bad investments. We have seen

*Damdupat Kan upat.

that excessive facilities in recovery of debt as well as other causes have led to credit being largely given to the poorest class of ryots. Much of this business was from the first speculative, and possibly it was in some measure owing to the growth of this kind of business that, in spite of the improvement in agricultural securities through the survey settlement and the general prosperity of recent times, the rates of interest for agricultural loans have remained for the poorest borrowers nearly where they were.

85. Our reply to the question propounded above is that there is no evidence before us that the profits of the sowkar's business are extravagant. In a time of agricultural prosperity, the profits are doubtless high, and individuals, whose dealings are sometimes fraudulent, no doubt occasionally realise excessive gains. But, on the whole, there is no reason to believe that the sowkars dealing with the agricultural classes make higher profits than are warranted by the nature of their business which is always precarious and unpopular, occasionally, as we have seen, dangerous. It only remains to note the obvious fact that, if the taking of usurious rates does to any extent exist, the natural remedy is competition among lenders. Usury in an open market is a contradiction in terms.

App. A., p. 181.

In India, no doubt, custom and other forces interfere to restrict competition, and matter of interest, interfere to the detriment of the comparatively solvent borrower. Sir J. Strachey, the present Lieutenant Governor of the North-western Provinces, in a note written in 1859, said:-

> "Whatever ought to be the case in theory, it is very certain that questions of abundance or scarcity of money, of greater or less demand for loans, of good or bad security, of competition, and the like, have in practice comparatively little to do with the settlement of the terms on which agriculturists in this country ordinarily obtain advances of money. The conditions depend far more upon the degree of simplicity in the borrower and of rapacity in the lender than upon anything else."

The simplicity of the borrower in the Deccan is extreme, and would induce him to accept the lender's terms without question if they were no higher than custom had made familiar to him, even if they were in the particular case in hand unreasonably high. Rapacity in the lender is a characteristic of native dealing, which looks rather to immediate profit on the transaction in hand than to attracting business by favourable terms.

These considerations, doubtless, have their weight. But it cannot be said, even in the villages of the Deccan, that at present competition is non-existent, and in the future it is likely to increase. The Honourable Mr. Justice Turner, in a note recorded in 1873, on the question of the embarrassments of the landholders in the North-western Provinces, wrote as follows:-

> "Indian money-lenders, it is true, demand a high rate of interest, from 9 per cent to 24 per cent on good landed security. These rates appear to Englishmen exorbitant; it is almost ruinous for landholders to borrow at such rates, except in countries which offer far better, opportunities for the employment of capital in land than does India generally. In many parts of these provinces there is little competition among money-lenders to keep the rates of interest low; but this is not the sole reason for the maintenance of such rates, otherwise, in places where there is such competition, the rates would be lower. In the district in which I am writing there are English bankers having capital to lay out who either decline to make advances to landholders, or who demand the same rates as are charged by the native money-lenders. The causes of this distrust of land as a security are not far to seek".

Mr. Turner then proceeds to state very plainly the reasons why interest in these Provinces is high, and why land is not considered a very valuable security. In his view these reasons are sufficient to account for the rates charged without attributing to the money-lenders a power of exacting usurious rates.

(b) - Is it possible to regulate the rate of interest by law?

86. Supposing, however, that the rates charged are to any extent unfairly high, the question follows whether it is possible to reduce them either by law or by Government interference in any form. The objection to the enactment of usury laws is that instead of lowering the rate of interest they raise it. The borrower has to pay not only the rate he would have paid if there were no usury law, but also a further sum by way of premium for the risk of punishment to which the creditor is liable under the law. The means of evading a usury law are so numerous and simple that it is impossible to prevent their being resorted to. The parties have only to state in the contract a greater amount of principal than was really lent, and it would only be in rare cases that the true nature of the transaction would come out and these are provided for by the creditors obtaining an extra rate of interest to cover this extra risk. Even if the law could secure a true statement of the principal it could be evaded in numerous other ways. It has been shown by Bentham and others conclusively that it is impossible to lower the rates of interest by law.

It might be however, and has been, argued that, although in most instances a usury law would result in evasion, it would still be not without a good effect in two ways: (1), it would set up a standard or a limit of interest, which in this country, where the supposed will of the Government has so much influence on custom, and custom has so strong a force, would be beneficial; and (2), it would in extreme cases, when the lender was not inclined to incur the necessary risk, cause loans to be refused, - a desirable consummation. The reply to this argument appears to us to be that these good results are of rather remote nature, and that even if attainable they would not be sufficient to compensate for the evil result of raising interest generally in the manner described above, and for the demoralisation which usury laws tend to produce.

App. B., p. 57.

It has been proposed by Mr. Justice West in his pamphlet, "The Land and the Law," that rate of interest should be controlled, not for all cases by legislation, but in particular cases by the Courts. In cases of all obligations for a principal of not more than Rs. 500, he would give the Courts full power to treat any interest in excess of 9 per cent as simply penal, and to cut it down to such rate as, under the circumstances, should seem just. It appears to us that this method would have no advantage over a usury law, while it would have the additional disadvantage of uncertainty in its operation. No lender could foretell what rate of interest above the minimum would be treated as excessive, and the effect to the borrower would apparently be that of a usury law fixing 9 per cent as the maximum rate. We have formed a favourable opinion of the intelligence and character of the Subordinate Judges of the Bombay Presidency from the manner in which some of them have recorded their views on the subjects now before us, but it must be remembered that to empower them to use such a discretion as that here suggested is to ask them to assume a responsibility for which the legal training within their reach and the national character hardly fit them. Diversity of practice in the use of this discretion would be almost inevitable, at least until a body of precedents had been created which should remove the subject from the sphere of discretion to that of law.

(c.) Other means of reducing the rates of interest.

Government banks

87. The question remains whether it is possible to reduce the rates of interest by any other means. It has been suggested that Government should itself compete with the money-lender by the establishment of land banks. This form of Government intervention might possibly be practicable in districts, such as those of the North-western Provinces, where the large estates of proprietors intermediate between the State and the cultivator are at stake; but we believe that it would be physically impossible for the Government to assume in the Deccan the functions of the sowkar in providing for the petty and multifarious needs of the ryot. Enough has been said in previous chapters of this report to show that such aid as a carefully managed bank could give to the ryot would go but a very little way towards making him independent of the sowkar. We may add further that, as the ryot makes his payments not in money but in produce, unless the Government banks were prepared to take payments in kind with all attendant risks, the sowkar would intervene at the first stage of the ryot's loan to receive the produce and advance the cash. The experience of the Tuccavi system of loans does not lead to a conclusion that this form of State aid would be of any practical benefit as a permanent measure. Lastly, it has to be observed that the proposal to interfere with the current rates of interest by means of a State bank begs the question as to usury. The competition of a bank can reduce the rate of interest only if the rate of interest is unduly high. If the rate of interest is not unduly high with respect to the risk, that is, is not usurious, the bank must either lend at a loss, or refuse most of the loans now advanced by the sowkars, or must be provided with cheaper and prompter methods of recovery than are open to the trader.

88. There are certain elements of uncertainty connected with land which must diminish its value as security and tend to enhance the rates of interest, and which may be regarded as more or less remediable. There is the uncertainty as to the amount of assessment that may be imposed at a revision. For some years before a revision of assessment takes place in any district lenders may be expected to look with distrust upon land. Under the Land Revenue system some uncertainty at these periods is unavoidable; but, to, whatever extent it can be avoided in future to that extent will a direct benefit have been conferred both on lenders and borrowers. Then there is the uncertainty as to title. The extent of the interest which a Hindu may have in a piece of land depends on so many contingencies, and there are so many means of impugning the best titles that this ground alone must be a great source of insecurity to the creditors. To take one example of how a title may be doubtful. When a man dies leaving a widow and a brother, the question whether the widow gets the property or the brother depends on whether he was joint or not with his brother. It is said that a Scotchman does not generally know for certain whether he is married or not; but that is nothing compared to the uncertainty of a Hindu as to whether he is joint or not. Again, where the brother gets the property as being joint, the widow may deprive him of it by adopting a son to her late husband. The title, in short, of a Hindu owner is so insecure that such titles are, it is said, refused altogether by some firms in Bombay as security for loans. To improve these titles would be one means by which the rate of interest might be reduced. The only way to do this, however, is to simplify the Hindu law of Inheritance, and that is a subject scarcely within the province of our deliberation. So far as titles are rendered doubtful by the difficulty of ascertaining whether any previous lien on the land exists, something may perhaps be done to remedy the evil by an extended system of registration. Beside the elements of uncertainty peculiar to landed property there is the risk of fraud on the part of the debtor as a cause

of high rates of interest. The prevention of frauds would therefore have the effect of enhancing the security of the creditor, and thereby reducing the rate of interest. The means by which frauds may be prevented will be discussed under that heading further on. The effect of the Limitation Law on the amount of interest in renewed bonds is noticed under that head.

II. EX-PARTE DECREES.

89. It is suggested that the debtor suffers unfair treatment from the passing of *ex-parte* decrees against him. In a large majority of cases, for whatever reason, he does not appear to defend a suit, and a decree is given against him unheard. A feeling that he is unfairly dealt with is thus, it is thought, aroused within him. With regard to this suggestion the first question to ask is whether ex-parte decrees are usually numerous.

(a.) Are such decrees unusually numerous?

90. The number of suits decided *ex-parte* in 1873-74 in the whole Presidency was 66 per cent of the whole number disposed of. The number of suits uncontested was 86 per cent of the whole number disposed of. The following table shows how these figures compare with the returns from other Provinces:-

Presidency or Province	Uncontested (Per cent)			Contested (Per cent)
	Confessed Adjusted, or Withdrawn	Decided ex-parte	Total uncontested	
(1)	(2)	(3)	(4)	(5)
Bombay	20	66	86	14
Bengal	42	20	62	38
Madras (exclusive of Madras Small Cause Court)	42	25	67	33
North-west Provinces	43	22	65	35
Panjab	57	7	64	36
Oudh	59	7	66	34
Central Provinces	61	12	73	26

This table shows that the proportion of uncontested suits is considerably larger in Bombay than it is elsewhere; while the proportion of decrees consented to without contest is from 100 to 200 per cent greater in other provinces than it is in Bombay. In every other Province the cases confessed or adjusted far outnumber the cases decided *ex-parte*. In Bombay the proportion between them is as 20 per cent to 66 per cent. Apparently in Bombay defendants with a bad case prefer allowing a decree to pass against them in their absence, to taking the useless trouble and expense of coming to court either to consent to a decree in full or on the chance of making an adjustment with their creditors. The returns of 1872 show that in the Ahmednagar courts the proportion of *ex-parte* cases amounted to 71 per cent. In Poona the proportion is less, being nearly 64 percent. The proportion of suits regarding immovable property, which are usually defended, is higher in Poona.

It appears then that in Bombay generally, and in the Deccan in particular, the proportion both of uncontested suits and of *ex-parte* decrees is unusually large. In all countries the number of suits for recovery of debt which are undefended is a large proportion of the whole number decided, and it is only reasonable to expect that this should be the case. In the majority of suits everywhere

the creditor comes to court, not because the claim is a doubtful or disputed one, but because his debtor refuses to pay except when compelled to do so. Thus in England 43 per cent of the county court cases proceed no further than the plaint, and do not go so far as even an *ex-parte* trial, and in the returns of the Bombay Presidency we find the proportion of *ex-parte* suits varies with the proportion of suits to recover debt. Thus in the Ratnagiri and Kanara districts, where the suits relating to land are 18.2 and 20.5 as compared with 3.9 in Ahmednagar and 6.6 in Poona, the proportion of *ex-parte* cases is only 57.2 and 46.6. It seems probable that the disproportion between the numbers of *ex-parte* decrees in Bombay and the other Presidencies may be due in some measure to a large proportion of suits for recovery of debt; but we are not in a position to determine how far this is the case, nor to judge whether the other reasons for *ex-parte* decrees, which we proceed to consider, have more force in Bombay than elsewhere.

91. The ignorance and poverty of the debtor, his fear of the creditor and desire to keep on good terms with him, and his inability to produce evidence, are assigned as reasons why suits to which a defence might be made are uncontested.

The ignorance of the debtor may be expected to tend to this result in two ways:-

1st. The ryot, supposing that facts which constitute nothing more than a plea to the creditor for forbearance will have weight with the judge, goes to court and states them as an answer. Finding that they constitute no defence he is discouraged, and his example discourages others from opposing a suit.

2nd. The ryot does not know when he has a defence. He is always sued upon a contract, and there are many facts that make a contract invalid. He might be able to prove such a fact, but is unaware that it would make a document which he has signed void as a contract. His poverty debars him from access to the vakil who could help his ignorance and makes the expenses of defence a matter of serious moment to him.

Out of 422,035 suits disposed of in the subordinate courts of Bombay in 1873, 295,574 were for sums not exceeding Rs. 20 in value. It may well be supposed that it would not unfrequently be better for the ryot in such cases, even if he have a defence, to withhold it. The ryot who has felt or seen the powers of a creditor holding a decree is afraid of the sowkar treating him harshly if, after opposing a suit, he fails in his defence. Further than this he desires to have the sowkar on whom he depends friendly towards him, and cannot afford to alienate him by opposing his suit. On the subject of the ryot's inability to produce evidence we may simply quote the words of the Sub-judge of Bulsar:- "A great number of these cases are brought on bonds passed by defendants in which plaintiffs have to prove execution only, while the defendants, whose defence may consist of non-receipt of consideration or part or whole repayment, have to prove the same. But very few of them have such evidence, apart from the difficulty of making such proof."

(b.) Fraud as a cause of ex-parte *decrees.*

92. Another important question arises on the subject of the large proportion of *ex-parte* suits in the Bombay Presidency. Is there anything in the action of the courts which tends unduly to prevent or deter defendants from contesting suits, and thus causes an undue proportion of *ex-parte* decrees?

App. A., p. 291, App. B., p. 99.

One of the allegations made is that the creditors arrange with the process server that the notice to appear shall never reach the defendant, and they thus fraudulently keep him in ignorance of the fact that proceedings have been instituted. Of the opinions quoted on the subject, some are in favour of the truth of the allegation, and some are to the

effect that there is not much in it. The Sub-judge of Tasgaon, for example, says that he examined some intelligent debtors of some well-known villages on the point, and he was told that for the last four or five years they did not know of any such false reports being made by the serving officers as to the service of the summons. In examining the convicted rioters particular attention was directed to this question, and out of the whole number in jail at the time not one complained that a decree had been obtained fraudulently against him in this way. In answer to the question, Whether his brother had received the amount in a suit, the convict, Bali Salaji, said, "I suppose the summons was served, how could the court proceed otherwise?" The present law is that service of the summons shall be proved *to the satisfaction of the court* before the, case proceeds *ex-parte*, and any *ex-parte* decree may be afterwards set aside; if the summons is served with due care and vigilance on the part of the court these rules appear to be sufficient.

The establishments of the courts are now on a better footing than at the time (1852) when Sir G. Wingate brought to notice the practice of fraudulently procuring non-service of summons as a material grievance, and the chances of the defendant appearing are so small that there is but little inducement to secure his non-attendance by fraud. The Sub-judge of Ahmednagar reports as to service of summons that from 20 to 25 per cent are served on the defendant in person, from 30 to 25 per cent are served on members of the defendant's family, and from 25 to 30 per cent are fixed on the door of the defendant's house. There are very few applications for re-hearing on the ground of non-receipt of summons.

(c.) Other causes of ex-parte decrees.

93. In the Administration Report for 1873-74 it is said:- "It is curious to observe that out of a total number of 155,283 suits disposed of before the subordinate judges only 21,822, or 14 per cent, were contested, that 10,919[?], or 65.5 per cent, were decrees on confession, or decreed or dismissed *ex-parte*, and that in only 3,365 contested cases was judgment given for the defendants. These facts tend to show that the defendants in these cases, who, as a rule, are ignorant cultivators, suffer most from the actions of these courts; that the mere admission of the execution of a bond is generally regarded as a ground for a decree, no matter what be the circumstances under which the bond was executed; and that the debtors, as a rule, have so little hope of deriving any help from the courts that in 69 cases out of 100 they make no, defence.

App. p. 270.

With reference to these remarks we have to say that the inference here drawn that the admission of execution is regarded as ground for a decree, does not seem to us to follow from the fact stated. The main reason, doubtless, why so many debtors make no defence is that they have no defence to make. It appears to us, however, that in two or three other respects the courts do not give to the debtors all the help they might give. More than one of the judges reports that the subordinate judges are overworked. The Judge of Ahmednagar says, "the subordinate judges in this district are much over worked, and really have not time to investigate cases properly and to weigh evidence." The Judge of Satara says, "I believe our subordinate judges are too hardworked to allow, even if they were inclined to do so, of their going into the history of such cases as the one put forward by you." The result of this over-pressure or work is that the assistance of pleaders becomes necessary. By the aid of a pleader a defendant is enabled to present his case in a sufficiently compact form to be quickly apprehended by the judge; without that aid there is a risk of its being misunderstood. The agricultural debtor cannot afford to pay a pleader, and it can hardly be doubted that this consideration must deter many

persons from contesting suits to which they possess a defence. This over-pressure of work on the courts produces also, in another way, an injurious effect on debtors, namely, by causing delay in the disposal of suits. The following figures show the number and duration of suits in the Poona disturbed district for sums of less than Rs. 500:-

Name of Court	Ex-parte Suits			Contested		
	Number	Average duration		Number	Average duration	
(1)	(2)	(3)		(4)	(5)	
		M.	D.		M.	D.
Subordinate Court, Poona	354	1	25	51	3	15
Subordinate Court, Tálegaon	2,013	1	$13\frac{19}{20}$	202	3	$5\frac{1}{7}$
Subordinate Court, Pátas	1,087	1	28	144	2	18

It is stated that great efforts are made by the courts to dispose quickly of the uncontested cases, while the contested cases are unavoidably left to be decided after frequent adjournments. The average duration of original suits in all courts in Bombay in the year 1872 was $3\frac{1}{2}$ months. We have no information as to the average in contested suits only, but if it be assumed that the average in uncontested suits was not over two months, it will follow that the average in contested suits was over a year. The duration in the other presidencies is as follows:-

Presidency and Provinces	Average duration			
	Uncontested Cases		Contested	
(1)	(2)		(3)	
	M.	D.	M.	D.
Bengal	2	0	3	20
Madras	7	0	12	0
North-west Provinces	1	6	3	11
Panjab	0	20	0	24
Oudh	0	24	0	24
Central Provinces	0	17	0	26

It is obvious that the greater the duration of contested cases is known to be, the greater will be the reluctance of the agricultural debtor to spend his money and his time, which is often more valuable to him than money, in defending a suit, and the larger consequently will the proportion of uncontested cases tend to become. Owing to the distance of the court, in many cases the defendant's attendance would involve absence from his home and labour for three or four days at a time. These defects in the action of the courts which tend to debar the debtor from a hearing should in our opinion be remedied - (1) by providing sufficient judicial machinery to ensure cases being heard out on the first day set down for trial; (2) by the courts going on circuit.

III - EXCESSIVE POWERS OF REALISING DEBTS.

(a) - What powers are given to the creditor by the law.

94. We now come to one of the most important questions with which we have to deal, viz., and the powers with which the law invests the decree-holder. We propose to discuss the subject under the following heads :- (a) What powers are given to the creditor by the law ? (b.) Are they excessive? (c.) Are they abused?

Imprisonment.

In order to recover a debt, it is obvious that resort can only be had to the property, present and future, of the debtor and to the labour of the debtor and his family. A law which allows an unlimited resort to all these means of recovery gives the greatest help to the creditor that it is physically possible to give. The law of India appears to be the only modern law which allows such unlimited resort, and we find that under it the debtor and his family are liable in person and property to an extent which is practically unlimited.

It may be thought that there is no foundation for the somewhat startling statement that the creditor is allowed by our law to recover his debt by the slave labour of his debtor. It is true that the Civil Procedure Code does not in so many words say that the creditor may compel his debtor to work for him as a slave. Then words of the law are - "If the decree be for money, it shall be enforced by the imprisonment of the party against whom the decree is made, or by the attachment and sale of his property, or by both if necessary." In subsequent sections there are one or two clauses which apparently limit the powers of imprisonment and sale, which by this clause are given absolutely without restriction. At first sight this clause does no appear to authorise slavery, but on further consideration it will be found that it does authorise it. The power to imprison clearly gives the creditor power to compel the debtor to do whatever would be less grievous to bear than imprisonment would be, and undoubtedly most cultivators prefer to be allowed to work in their native village and on their ancestral lands to being sent to a distant jail, which has to them all the terrors of the unknown. That they may on certain conditions get free, or that the term of imprisonment is not absolutely of unlimited duration and hardship, is also as a rule unknown to them. Although then slavery is not directly mentioned in the Codes, it is indirectly declared by giving the creditor practically unlimited power to imprison. If further evidence was wanted to show that imprisonment may be used for the purpose of slavery, the Prussian Code* shows distinctly that such is the case. In the Prussian Code of Procedure (Part I., title 24) it is laid down that, "If the debtor is entirely ruined and despoiled, the creditor may cause him to be condemned to devote to him his services, his labour, and his industry. In case of his failing to comply the creditor has the right to cause him to be imprisoned." Imprisonment is, however, limited to terms of one year, whereas in India the debtor may be imprisoned for two years under each decree. The only difference between the Prussian Code and the Indian Civil Procedure Code is that the former states the use to which the penalty of imprisonment may be put, while our Code states only the penalty, leaving the creditor to put it to any use of which it is capable. That one of these is slavery is clear from its being so used by the Legislature itself in Prussia. There are other uses, or rather abuses, to which the power gives rise. In one case the creditor used the power of imprisoning his debtor to compel him to give him his wife and daughter as his mistresses. Other abuses

* The information regarding the Prussian Code, and other foreign Codes referred to in this Report, has been obtained from a collection of the laws of about 50 different nationalities by M. de Saint Joseph, a distinguished French judge, in the possession of a member of the Commission.

of the power will be noticed further on. At present we are treating merely of the use of imprisonment for the recovery of the debt. In England, although the power to imprison, if it existed, might be put to such a use, the character of the people, both the debtors and creditors, would be sufficient to prevent any such exercise of it. In India, however, the, power to imprison is not only capable of being so used, but from the evidence collected it would seem to be established that the power is exercised for this purpose.

App. A., p.

The appendices contain ample evidence of the way in which the power of imprisonment is used to convert the Bheels of Khandesh into bondsmen of their Guzar creditor even to the degree of actual transfer of the enslaved Bheel by sale of the decree which gives the title to his labour. The labour bonds mentioned as not uncommon in Ahmednagar, of which samples are given in the Appendix, and which are spoken of in indignant terms by one of the judges, are the creation of this law. Thus Tatva Saloo, potter of Supa, on being asked what he would do as to the balance of his debts which he was unable to pay, said, "I will pay by my labour. The Marwari would not let me go without paying off everything. He would prevent me leaving the village by executing a decree against me or putting me in jail." Other debtors appear to receive less than ordinary wages for their labour, and to work on their lands for the benefit of their creditors, who allow them only bare food and clothing. In other words they are the slaves of their creditors.

The only apparent limitation supplied by our Code is that by which the debtor is allowed to obtain his release from jail on delivering up all his property. This discharge is, however, only a discharge from imprisonment, and that only under the decree in execution of which he has been imprisoned. His property is still liable even under *that* decree, and he is liable to imprisonment under any other decree. The fact that through the whole of this Presidency only 76 persons out of 1,877 imprisoned obtained their discharge under these provisions of the Code shows that they are of little use even as affording partial relief by way of insolvency. This fact is clearly brought out in the statement of one of the ryots examined, who only heard of this means of obtaining his release by the accident of the Judge making a visit of inspection to the jail during his confinement there, hearing his case and informing him of his remedy.

Liability property.

95. With reference to the extent to which property is liable, it is not necessary to say much. The law distinctly gives absolutely unlimited power to sell. Section 205 of the Procedure Code says: "All property whatsoever, movable and immovable, belonging to the defendant is liable to attachment and sale in execution of a degree." According to this, then, strictly interpreted, the very clothes on the back of the unfortunate debtor may be sold. There is no reservation of even the simplest necessaries either for himself or for his wife and family. Further, the law allows the creditor not only to strip his debtor bare at the time by selling all that he possesses, but this may be done again and again as soon as the debtor manages to scrape together a few annas' worth of property.

(b.) Are the powers excessive?

96. The mere statement of what the power of the creditor is, would seem in itself a sufficient answer to the question. The power to utterly ruin and enslave the debtor is a power which clearly the creditor ought not to have, and as a fact it was never intended when the Code itself was passed that the creditor should have it. "The ancient laws of most countries," says Mill, "were all severity to the debtor. They invested the creditor with a power of coercion more or less tyrannical, which he might use against his insolvent debtor, either

to extort the surrender of hidden property or to obtain satisfaction of a vindictive character, which might console him for the non-payment of the debt. This arbitrary power has extended in some countries to making the insolvent debtor serve the creditor as his slave; on which plan there were, at least, some grains of common sense, since it might possibly be regarded as a scheme for making him work out the debt by his labour. In England the coercion assumed the milder form of ordinary imprisonment. The one and the other were the barbarous expedients of a rude age, repugnant to justice as well as to humanity. When we compare the law of India with that of other countries we find that not one is so oppressive as the Civil Procedure Code in this respect, not even the oldest law in the world, the law of Moses, which allowed the debtor a discharge after serving seven years. For the purposes of comparison it is convenient to consider the powers given for realising debts under three heads, viz.:-

1. Imprisonment.
2. Sale of existing property.
3. Sale of future property.

1. Imprisonment.

97. As to the power of imprisonment the vast majority of nations have deprived the creditor of it entirely. In France, by a law passed in 1667, imprisonment for ordinary debt was abolished, and only retained in the case of debts where there was certain amount of fraud or improper conduct on the part of the debtor. The Code Napoleon contains similar provisions (Articles 2033, 2064, 2065). The great majority of nations have followed the example of France in this respect, *e.g.*, Baden, Belgium, Haiti, Bolivia, Sicily, Ionian Islands. Imprisonment for debt has also been entirely abolished in Geneva, Hanover, Fribourg, Lucerne, Berne, and Tessin. In the few Codes where imprisonment for debt is retained, a workable insolvency law removes a peat great of its rigour. In England, imprisonment for debt was abolished in 1869 by Acts XXXII and XXXIII Vict. c. 62.; but if it is shown that the debtor can pay, but refuses to do so, he may still be imprisoned to compel payment. In the United States a law was passed by Congress in 1839, declaring that no person should be liable to imprisonment for debt unless the law of the State to which he belonged allowed such imprisonment. In several of the States (Alabama, Michigan, Ohio, Louisiana, and others), the law is that imprisonment is not allowed, except in the case of fraud or where the debtor is about to leave the country. In India in the Presidency towns imprisonment for debt is allowed but the debtor may get free, without even first going to jail, by giving up all his property less Rs. 300 worth of necessaries. With regard to Native laws on the subject of imprisonment for debt, the Hindu law appears to have allowed it, and also to have allowed slavery for debt; but these penalties were enforceable not by the State but by the creditor himself. Although, therefore, nominally there was imprisonment and slavery for debt, practically "severity in the exercise of justice could not be complained of." Mahomedan Law appears to have been very much the same as the present law of England. In Macnaghten's Mahomedan Law the rule is said to have been that "the debtor should not be imprisoned unless the creditor can establish his solvency."

The power of imprisonment appears to have been intended by the Legislature to be used as a means for procuring the surrender of the debtor's property, an imprisoned debtor can procure his release by the cession of his property. It is, in fact, an alternative method to the ordinary process of seizure of the property itself. If, as is the case with the agricultural ryot of the Deccan, the debtor is a man with an established residence to which he is bound by the strongest ties; if his property is such that it is easily ascertainable and in great measure impossible to conceal; and if such frauds as he may be tempted to commit in order to evade payment are punishable under the criminal, law,

the necessity for the alternative method of securing his property in payment is reduced to a minimum.

2. Sale of existing property movable.

98. By section 62, clause 2, Regulation IV., 1827, "implements of manual labour and such cattle and implements of agriculture as may, in the judgment of the Court from which the process issues, be indispensable for the defendant to earn a livelihood in his respective calling, or cultivate any land that he may hold for that purpose", were exempt from attachment. By the present law (section 205, Civil Procedure Code) "all property whatsoever, movable or immovable, belonging to the defendant is liable to attachment and sale in execution of a decree". The only exception being that the imprisoned debtor, applying for his discharge under section 280, has not to include the necessary wearing apparel of himself and his family, nor the implements of his trade in the list of his property.

By the English Bankruptcy Act, 1869, section 15, the tools (if any) of the bankrupt's trade and necessary wearing apparel and bedding of himself, his wife, and children to a value, inclusive of tools and apparel and bedding, not exceeding £20 in the whole, are exempted from sale. By the Insolvency Act, Rs. 300 worth of property may in the Presidency towns of India be retained by the debtor.

App. A., pp. 247-259-85, &c., p. 246.

We have no papers before us to show why the provisions of Regulation IV, 1827, were repealed, but there is a strong concurrence of opinion in all the officers consulted that the exceptionally stringent conditions of the law as it applies to Mofussil debtors should be relaxed, and that a margin of necessaries and implements of trade or calling should be reserved from sale. In this opinion we agree. As to the definition of necessaries we may note that in the case of the agricultural classes which form the great mass of the population, necessaries consist of agricultural stock and implements, houses, instruments for preparing and cooking food-such as mills, pots, &c. - and clothing. In this list beds or bedding do not appear, as they are considered luxuries. It might seem also that to put houses in the list of necessaries is rather stretching the meaning of the word, but to those who know Native habits this is not the case. In Indian villages living in lodgings or in hired houses is almost unknown. Many of the poorer cultivators live in huts constructed by themselves, and such a but is very often of no value to any one except the owner, as on account of the distinctions of caste it would be only a man of the same caste as the owner who could live in it afterwards. Frequently, when the creditor comes in and sells the wretched hovel in execution, all that is done is to remove the one or two pieces of timber on which the building rests, and to leave the mud walls to their fate, and the wretched occupant to seek shelter from the sun and the rain where he may. This is undoubtedly very harsh treatment, and the power of exercising it should be taken away.

Sale of existing property (immovable). App. A., p. 141.

99. The loss of land has been commonly regarded as one of the principal causes of discontent on the part of the agricultural debtor. In the collection of papers on the subject of agricultural indebtedness in the North-west Provinces, this discontent is mentioned as having produced disastrous result in the disturbances of 1857. In those provinces, indeed, as well as in the Panjab, Oudh, and the Central Provinces, it has been mainly with reference to the alienation of land that the question of indebtedness has been discussed. The reason is that in all those provinces the inexpediency of allowing a general transfer of land from the old proprietary families to the

money-lenders, the *novi homines* of British rule, is a political consideration. In the Deccan the question is economic rather than political, and its conditions here make it less pressing than there. In the North-west the money-lender desires to obtain possession of the land by forcing the debtor off it. Here he prefers to receive the annual produce of the land from the debtor, as a tenant at will. He will not generally undertake the responsibilities of recorded proprietorship till he is driven to it. The condition of the debtor as tenant at will is, no doubt, miserable, but he does not suffer that divorce from the soil which is the sting in the fate of the indebted proprietors of Northern India.

The subject of loss of land by the debtor divides itself naturally into two parts, viz., compulsory alienation by the Courts for debt and voluntary alienation by the debtor himself. We are at present concerned with the first part only. We have to inquire whether the power to compel the sale of land for debt is an excessive or unreasonable power. Judged by the law of other nations it certainly is no such a power. It is said by some of those who advocate its exemption, that under Native laws land was not liable for debt. By Mahomedan law land is liable, like all other property, for the debts of the owner. In the Hedaya XXX the kazi is directed to satisfy the claim of the, creditor from the estate of the debtor; firstly, disposing of his cash, then of his effects and household furniture, and, lastly, of all his houses and lands. In Hindu law there is no text by which land is exempted from liability for debt; nor, on the other hand, is there any distinct text stating that it shall be so held liable. With regard to the practice in Hindu States opinions differ as to whether land was liable or not. In practice, however, there is a concurrence of testimony that land was not alienated for debt in the district with which we are dealing. A large proportion of the ryots had no estate in land which could be transferred, nor were regular legal tribunals accessible to the creditor.

100. The question follows, - Whether in the Deccan the gradual transfer of land to the money-lending class is a desirable process? It might be held that if the risks of discontent, manifested in crime and popular disturbance, could be avoided, the process of the transfer of property in land from a needy and ignorant to a monied and intelligent class is in itself desirable. We are of opinion that as regards the district and the two classes, viz., the Kunbi and the Marwari with which we have now to do, this conclusion would be unsound. There is no such superiority in intelligence in the ordinary sowkar as would result in improved cultivation, nor does the land itself offer him such good investments as his money-lending business. An intelligent and liberal landlord finds it very difficult to realise a small profit from inferior land held in ryotwari tenure, and it is only by rack renting and often drawing on the debtor-tenant's labour in addition to his rent that the Marwari makes a fair average profit from land in his possession. Irrigated land, it is true, yields a large profit; but to a non-labouring landholder, who has to pay for all the work of making a well, the investment would rarely be attractive. In all that concerns agriculture the Kunbi is superior in intelligence to the Marwari, and, if the profits of his labour are secured to him, is by no means wanting in industry or enterprise. By converting him into a tenant at a rack rent these advantages are lost to the land without any compensation whatever. The character of the class who would supersede him as landholders is illustrated in the notes on the sowkars of Párner in the Appendix.

App. C. p. 246.

We there find that some of the Marwaris, who had accumulated the largest estates in land were person who showed open defiance of the law. In civilised countries it has been found that the interests of the lower agricultural class are very much at the mercy of those above them; this evil is intensified in India, and if the Deccan ryot is

handed over to such landlords as the Marwaris of Parner it may be feared that his fate will be worse than the worst endured by the Irish tenantry of 30 years ago. It is barely a generation in time since Government began to divest itself of the powers of an irresponsible landlord for the benefit of the agricultural ryot. To allow these powers to be re-transferred to a class with none of the traditions of the hereditary landholder, and probably the least fitted in the civilised world to use them, would be to undo all that has been done, and to make the last state of the ryot worse than the first. It might, indeed, be possible by rent laws and other limitations to protect the tenant; but much stronger reasons than are at present apparent would be needed to make it desirable that the Kunbi proprietor of the Deccan should sink to the position of the most favoured Bengali tenant. It may well be that, unless new industries or emigration come to the relief of the growing population, the transfer of land from the needy to the rich will become inevitable, and that before the Kunbi has become educated enough to profit by the need of his fellows the necessity for the protection of the tenant may arise. That crisis has, however, not yet come, and we have now to consider only whether the process of such transfer at present is desirable, not whether it is eventually inevitable.

App. B., p. 283.

101. We have next to consider whether, in view of the evils attending the present course of affairs, it is advisable in any way to restrict the liability of land for debt. The restriction may take one of three forms; either (1) land may be altogether exempted from liability, or (2) it may be exempted unless made specially liable by the owner, or (3) sale may be prohibited and temporary transfer only allowed. With regard to the first form of restriction we are of opinion that its adoption is undesirable. It is impossible to foresee what its exact effect would be. It is uncertain how far it would produce the good results which are looked for, while it is certain that it would produce the evil results of depriving the borrower of the security which brings him credit on the most favourable terms, and thus of inflicting hardship at the outset on the very persons it is intended to relieve. For the second form of restriction more is, perhaps, to be said. It is a noteworthy fact that in the districts under our notice owners of land do not ordinarily mortgage it as security for the loans they take. In most cases the debtor having land to give as a security borrows merely on his own personal security. There seems also good reason to believe that these loans on personal security are obtained at a higher rate than the same person would have to pay if he gave a mortgage. Rather than give their land as security, borrowers are ready to pay higher rates of interest. It might be inferred from this that there is some idea in their minds that when land is not mentioned in the bond it is not liable for the debt; or, in other words, that there is an understanding, or implied contract, that the creditor is not to realise from the land. Whatever may have formerly been the case as to this the ryots have now learnt that land is liable for unsecured debts; but the debtor avoids mortgaging his land as long as he can, probably because he knows that when it is once mortgaged he will find it very difficult to raise money from other lenders, and because experience has shown him that the mortgage is the beginning of a transfer to the sowkar. The effect of the restriction would be to compel the borrower either to give his land as a security or to pay a higher rate of interest for an unsecured loan. In either case the compulsion would appear to him a hardship; and, though the hardship might be only imaginary in the first case, it would certainly be real in the second. We do not, therefore, advocate any restriction in this form. But in the case of insolvent debtors whose land is, as is usual, mortgaged, the effect of the measures which we propose for the sale of land will probably be nearly the same as the restriction under consideration. With regard to the third form, viz., the restriction of the liability of the land to a transfer for a limited

period, its intention is to limit the borrowing power of the debtor to an amount equivalent to the income of the land for the given period; but it amounts to a proposal that an insolvent should retain, besides necessaries, a reversionary interest in his land whatever its extent. Such a reservation could only be allowed on political grounds, and there are generally the same objections to this form of restriction as to the first. There is also the special objection that in practice the reversionary interest of the debtor would frequently be discounted during the term of alienation, and the object of the provision would be defeated. Mr. Pedder advocates (App. A., p. 10) the limitation of liability to the lifetime of the debtor. This limitation is open to the objection that it does not sufficiently recognise the readiness with which the son accepts the duty of paying his father's debts. This law of religion is one which to their great credit the poorest individuals in this country are loath to disregard; and as yet they have not learnt to place the equitable limits to its observance which are recognised by our statutes. It is doubtful whether they should be encouraged to do so.

A final remark has to be made with regard to all proposals for exempting land from liability for debts. In the case of land cultivated in small holdings by peasant proprietors, it is only possible in a limited sense to carry out an agreement or a law exempting land from liability so long as power is given to recover from movable property. Land, so far as it is valuable, annually takes the form of movable property when the crops are cut or sold, and the power of attaching and selling this movable property practically amounts to a sale of the land. The creditor can take all the profit of the land, leaving nothing to the debtor but the trouble of cultivating. Realisation of debt from land in this round-about manner would be productive of so many inconveniences to the landholder that it would be better to realise from the land directly and ostensibly.

102. A very important point in connexion with the sale of land by the Civil Court remains for consideration, viz., the conditions and method of sale. On the application of a decree holder the Court advertises for sale the defendant's whole interest in a piece of laud. If the value of his interest exceeds the amount of the decree it is evident that it is unnecessary to sell the whole out and out. The sale of the whole title in a portion of the land, or the sale or other alienation of a limited estate (such as a lease or mortgage, or rent charge for a term of years) in the whole of the land would be sufficient to effect the purpose of satisfying the decree; and on the principle that no more property should be sold than is sufficient to effect full execution, either of these courses is preferable to directing a sale of the whole of the land out and out. Both these courses are provided for by the present law (sections 243 and 244, Civil Procedure Code), and there are similar provisions in the new Civil Procedure Bill. Section 243 provides for allowing the debtor to raise the money either by a lease or mortgage of the whole, or by the sale of a portion; and section 244 provides for postponing the sale in order to realise by mortgage, or otherwise, on the application of the Collector and on security being furnished. Experience has shown that these sections are not largely made use of in matters affecting the ordinary Deccan ryot it is of no use to provide him with a remedy which involves legal proceedings on his part. He is unable to use it through ignorance and poverty. The provisions authorising the intervention of the Collector can only be used in districts where sales are ordered to be conducted by that officer. This order has not been made as regards the districts under report. It is a question whether this provision of the Code was intended to be made applicable in districts where the landed estates are small ryotwari holdings, and also whether the duty of conducting the sale can be legally delegated by the Collector to a subordinate. Moreover, a ryot whose land is about to be sold will not be in a position to furnish the required security. If the Court was authorised to inquire into and to

decide what the judgment-debtor's estate really consisted of; if the Court, that is to say, decided what share the judgment-debtor had in land, and to what extent it was burdened by mortgages and other encumbrances, it would be a comparatively easy matter then to obtain the money for the satisfaction of the decree by a temporary or partial alienation, provided the estate was in excess of the value of the decree. As the law stands nobody knows what the defendant's interest is, and what the encumbrances are; consequently it is rare that even by a sale of the whole interest the Court or even the debtor can obtain sufficient to satisfy the decree. A purchaser at an auction sale buys an indefinite and uncertain property, and bids, therefore, only a nominal sum for it. The way in which this uncertainty operates to the prejudice of the debtor is constantly seen in the Court sales of land in the Deccan. We have mentioned that the mortgage of land almost invariably precedes the sale under decree. The mortgagee is usually also under the decree-holder. The decree being for a personal bond, the amount of the mortgage debt is unknown, there is no one to bid for the land, and he purchases it himself for a nominal sum. In this way he avoids all inquiry into the account of his realisations during his mortgage tenure. The Court having no power to inquire into the encumbrances of the estate put up to auction, and no adverse purchaser coming into possession of the land to challenge his claims under the mortgage debt.

103. The evils resulting from the uncertainty attaching to the properties sold under decree are not confined to the agricultural class. All over the Presidency this uncertainty is a prolific source of litigation. The fact that out of 6,020 suits relating to land in the Bombay Presidency, 4,329 arose out of execution sales, shows how very speculative such purchases must be. If the Court, instead of selling indefinitely the right, title, and interest of the debtor, should state after inquiry what the property is that is put up for sale there would then be no difficulty in obtaining the proper price for the whole; or if partial alienation were sufficient, in effecting the satisfaction of the decree without sacrificing the entire estate. We consider it very desirable that in sales by the Court of estates consisting of several fields or pieces of land, the sale should be made in detail. It, is desirable to encourage purchases by persons of the agricultural class, and it might often happen that the price of a separate field would be within the means of a Kunbi, while that of the entire estate would be only within the means of a capitalist; and also that a cultivator might be willing to give a high price for a particular piece of land which possessed special attractions for him if sold separately from the rest.

3. Sale of future property.

104. The creditor's powers are not exhausted when he has beggared his debtor. We have seen that he can make him his bond-slave by the powers of imprisonment. If he do not require his labour, and the debtor is allowed to work for another, the creditor can then seize his earnings as fast as they accumulate, and without any limitation as to time.

App. C., p. 328.

There is no term to the currency of a decree. In the Appendix will be found statements of the decrees in force in some of the Courts of the disturbed districts, from which it will be seen that decrees dating from before 1860 are still current. The effects of all this cannot but be most mischievous. A debtor who is hopelessly insolvent, if he acquires property, does so only for the benefit of the creditor. The incentive to labour is destroyed, and the debtor ceases to be a useful member of society. The fact that all modern laws and most of the ancient codes (e.g., the Roman and Mosaic even) provided some means of relief by which the debtor at some time or other should be enabled to get free and get the benefit of his earnings would seem to show that some kind of insolvency law is wanted. The evidence on the

subject before us is one way. None of the reports or opinions approve of making future property, as at present, liable for debt without limit. There is a unanimous opinion that a limit should be put to the liability. To sum up: the description thus given of the powers of the degree-holder shows that they are practically unlimited in the fullest sense. The creditor has more than all the protection usually accorded by civilised codes; the agricultural debtor has not the most ordinary and universal - a law of insolvency. Among traders bankruptcy is a matter of private arrangement, and is fully recognised, though not provided by law; the agricultural debtor has no loophole whatever.

(c.) - Are the powers abused?

105. We have seen what the powers of the decree holder are; we have now to inquire whether they are abused. It may be said that the employment of the legal powers of the creditor to enforce slavery is not a proper use of them, and this is true in one sense. But the point we propose to consider is, whether those powers are only used for their legitimate purpose of recovering the debt due, or for purposes altogether foreign to the object for which they were granted. It is obvious that when a creditor has been invested with enormous powers for the purpose of recovering debt, he may use them also for other purposes. Below are given extracts from the reports of Subordinate Judges, which might be multiplied by similar statements of good authority, showing how decrees are used. Section 206 of the Procedure Code, which provides that no adjustment of a decree made out of Court shall be recognised unless certified to the Court by the decree holder, is the cause of much of the abuse of decrees below described.

The Sub-Judge of Pátas says:-

> "These creditors generally keep three or four unsatisfied decrees against a man, some of them even 12 years old; for occasions like these. Under pressure of execution they have in many instances realised the full amount of decree by obtaining new bonds, or the writs are returned unexecuted with endorsements, 'property or person not found'. No doubt these things could not be done without the assistance of Court officials, of whose morality I have formed a very low estimate. I have heard the most bitter complaints that executions are issued on decrees satisfied out of Court. One of them lately burst into Court and cried out most bitterly that he had satisfied the decree twice, and this would be the third time that he will have to pay again. None of these have the means or the inclination to file a suit for refund of money paid out of Court.
>
> "The money-lender generally obtains Warrants of arrest or writs of attachment, and takes the kárkun with writs to the debtor, obtains money in cash, part of the decree, or a few head of cattle, or a quantity of grain, or a new bond; and sends the kárkun away, and such Writs are returned by the kárkun with endorsements, property not found, or 'the party to be arrested not found.' I have closely examined several execution proceedings and took evidence also, and this is the result I have arrived at. Sometimes the property is attached and proclamation issued for sale. The decree holder then applies to the Court to drop the proceedings, alleging that as a matter of fact occasionally he has extracted something from defendant, for which no credit is given in decree. Under the pressure of execution mortgages are also obtained when there is anything worth mortgaging. When immovable property is put up to sale the creditor, as a rule, buys it himself. It is to his interest to buy it for-as little as possible; for so much money goes out of his decree, which is a *valuable source* of revenue for him."

The Sub-Judge of Tásgaon rites :-

"The money-lender is never satisfied with what payment he can extract from his debtor, under fear that the decree will be put into execution. But he generally insists on receiving some of the debtor's property in mortgage, such as his cattle, house, of land."

The Sub-Judge of Tálegaon writes:-

"I may here add that section 206 of the Criminal Procedure Code, though it curtails liquidation, causes not a little mischief. The ignorant debtors are often persuaded by their creditors to make payments out of Court. They do not know the consequences of such payments, and even if warned by sad experience their necessity compels them to comply with their creditor's wish. After payment they are under the impression that they are enjoying their peace. Under this delusion in goes the executing peon or kárkun to serve a notice upon them under section 216, or seize what property the creditor is pleased to point out, and the poor creatures find little relief when they come to the Court, for, unless there are circumstances which enables the Court to inquire into the question of payment, they are obliged to be coolly told that they ought not to have paid their creditors out of Court, and must therefore pay twice over".

The Sub-Judge of Násik says:-

"As regards the enforcement of decrees, the first step taken is to apply to the Civil Court. On the receipt of the application a warrant of attachment or arrest is issued. More than three fourths of the warrants are returned with such reports as the following, and the applications on which they were issued are disposed of:-

1. No property was found.
2. The judgment-creditor did not come to point out the property.
3. Part payment is made, therefore, the Judgment-creditor desires that no further steps be taken.
4. The judgment-creditor refuses to pay the fee for the warrant or the notices of sale.
5. Nobody bids at the sale.
6. The defendant was not found (in case of arrest).

"As a general rule, reports like the above are received when some amicable adjustment takes place between the judgment-creditor and the judgment-debtor. The actual realisation through the instrumentality of the Court, by sale and imprisonment, takes place in a very small proportion of cases. Sometimes the applications for the enforcement of decrees are made simply to keep them in force."

The most powerful means of compulsion in the hands of the decree holder is the warrant of arrest. It is believed that not more than 10 per cent of the warrants issued are executed; and of the persons arrested a large proportion are not imprisoned. The Subordinate Judge of Oomret, in Kaira district, states that of 100 applications for imprisonment only one or two judgment debtors are actually sent to jail. In 1872 the number of persons arrested under decrees was 7,135, the number imprisoned was 1,877. The case of the debtor who is not arrested is probably one of greater hardship than that of the arrested debtor. The latter, if brought before the Court, will sometimes have the terms under which he purchases the forbearance of the decree holder brought to the knowledge of the Court, whereas the debtor who settles without arrest has no chance of this protection.*

* Last year the number of warrants of arrest printed was 172,600, while the number of arrests was only 7,135; so that it would seem probable that somewhere about 150,000 warrants had been used as threats only.

IV. - LOSS OF LAND BY PRIVATE SALES.

106. Under the last head we considered the subject of loss of land by the debtor through compulsory alienation for debt. It remains to consider his loss of it through voluntary alienation. It is unnecessary to say more as to the reasons that exist for wishing to prevent the alienation of land; the question here is whether it is desirable to prevent its alienation by law. In the district with which we are concerned the alienation of land is in fact voluntary only in name. When land is sold privately it is generally sold under the pressure of civil process or the fear of process. The writers who have advocated the prohibition of private alienation have probably done so from the knowledge that with the powers at present possessed by the creditor of holding the decree in *terrorem*, the mere exemption of the land from liability in court would be ineffective. Mr. Justice West proposes that the Government should pronounce all land held from it to be either inalienable except with its consent, or else subject on alienation to re-assessment and to the levy of a rack-rent. A few other officers make similar propositions. On the other hand, many writers of authority, some of whom desire to prohibit execution sales of land, are of opinion that private sale ought not to be interfered with.

App. B., p. 67.

It has been questioned whether the alienation of land was allowed by the native laws. The principal texts of Hindu and Mahomedan laws relating to both sales and mortgages of land are quoted in the Appendix. It would appear from them that such alienations are familiar to both Hindu and Mahomedan law. Thus in Hindu law there are numerous texts like the following:- "Two kinds of property are universally acknowledged immovable and movable; when a contract of sale is made both are called by the name of vendible property". Pledges are declared to be of two sorts, immovable and movable. There are no doubt certain restrictions which practically prevented sale being resorted to any large extent; but the reason for them would appear to be the protection of the rights of the other persons interested, and not the prohibition of sale as in itself an evil. As to Mahomedan law, there appear to be no restrictions of any kind either as to sale or mortgage. No doubt it is possible to enact such a law as would prevent the execution of deeds of sale or mortgage in future. Such a law, however, would not prevent persons wishing to do so from transferring their land or an interest in it in some other shape. They might, for instance, call the transaction a gift, or a perpetual lease, or a purchase of an annuity on condition that the seller should hold the land so long as he paid the annuity. The only resource would be to declare land absolutely untransferable. This would be to subvert entirely the form of the property, and such a subversion could hardly be justified by any possible political or economic advantages.

V. - THE LIMITATION LAW.

App. B., p. 319.

107. It will be seen from the extracts quoted in the Appendix that there is a general opinion that the short period of limitation (three years) now allowed for suits for unsecured debts has the effect of enabling the creditor to oppress his debtor. Only one report is to the contrary. We are not, however, of opinion that any limitation law taken by itself can have this result. In the case of the ordinary debts of a ryot the law of limitation amounts to nothing more than a law by which the creditor is compelled to give the debtor a statement of his account. So far from this being an evil, it would seem to be the very best thing possible for the debtor. A fresh balancing of the account every year instead of every three years would, from this point of view, be better still. The only cost which the law puts upon the parties is the stamp, which is a comparative trifle, namely, one anna for every 100 rupees in a promissory note, and two annas for every 25 rupees on a bond. If

the transaction were, as it ought to be, something like the following the law of limitation would be the best for the protection of the ryot that would be devised:-

DEBT		CREDIT			
1865 Cash Rs. 50 for which a bond at 20		1865 Jowari	Rs.	4	0
per cent is given	Rs. 50	Karbe	Rs.	0	8
Interest for one year	Rs. 10	Labour	Rs.	0	8
		Milk	Rs.	0	4
		Cash	Rs.	5	0
1866 Interest for one year	Rs. 10	1866 Bajri	Rs.	8	0
		Cash	Rs.	1	0
1867 Interest for one year	Rs. 10	1867 Jowari	Rs.	2	0
		Bullock	Rs.	30	0
		Total	Rs.	51	4
		Balance	Rs.	28	12
Total	Rs. 80			80	0

It would surely be much better that an account such as this, which is a very usual account, should be balanced and a fresh bond given for Rs. 28-12 at 20 per cent than that such transactions should be allowed to run on for 12 years when the original debtor may be dead, and if alive will certainly have forgotten what he has paid. This is the, legitimate use of a limitation law, and it can hardly be supposed that the objections made to a limitation law refer to such a use of it.

It is objected to this law that it enables the creditor to extort a renewed bond for a greater amount than that really due. The limitation law alone, however, cannot enable the creditor to practice such extortion. It would rather appear to be the power which the law gives to the creditor to threaten a suit, when a suit may mean the imprisonment of the debtor's person, the sale of his land and dwelling at perhaps a nominal price, and the stripping him of all his other property except the clothes on his back. The reason why he waits for two or three years may be that he has not the effrontery to ask for a bond for double his debt without any excuse, and the limitation law is the excuse he makes use of.

108. The main objection made to a short limitation law is that it enables the creditor to obtain compound interest. Thus a loan of Rs. 100 for 12 years at 9 per cent becomes only Rs. 208 at the end of the 12 years. The effect of renewing the bond every three years is to raise this amount by charging compound interest up to Rs. 260, thus:-

First bond	Rs.	100
Interest for three years	Rs.	27
Total		127
Second bond	Rs.	127
Interest for three years	Rs.	34
Total	Rs.	161
Third bond	Rs.	161
Interest for three years	Rs.	43
Total	Rs.	204
Fourth bond	Rs.	204
Interest for three years	Rs.	55
Total	Rs.	260

When the interest is high and the bond renewed every two years, as is frequently done, the difference becomes enormous; thus at 2.5 per cent Rs. 100 in 12 years becomes at simple interest only Rs. 400, but by a renewal every two years under the limitation law it reaches the enormous sum of Rs. 1,139. The force of the objection

depends on the nature of the original agreement. If the agreement was to pay Rs. 25 per cent on the balance of his account, the debtor, instead of having to pay under the limitation law more than he had promised, would actually pay Rs. 316 less than he owed; for under such an agreement his liability would, at the end of 12 years, be Rs. 1,455 instead of Rs. 1,139. If, on the other hand, the agreement was to pay 25 per cent simple interest, or in other words to pay only Rs. 400 at the end of the 12 years, the effect of the renewal would be to compel the debtor to pay Rs. 739 more than he owed.

The ordinary form of agreement is to pay on demand the sum lent and interest at the rate fixed. This is in one sense an agreement for compound interest, as the creditor has only to get in his interest as it becomes due, and by lending it again to the same or another debtor he can recover the whole sum of Rs. 1,455 on his original loan of Rs. 100 at 25 per cent. If the creditor omits to get in his interest annually, this is an abandonment on his part of his right under the contract; and he then allows the debtor to have a distinct advantage which was not agreed upon, and loses a large part of his legal claim. But, although, strictly interpreted, this is the legal aspect of the contract, it appears clear that by the practice of the country, the taking of compound interest is not contemplated in the agreements entered into by the ryots. The agreements are for the payment of simple interest only, but with option to the lender to renew, and so to obtain compound interest if he finds himself losing by the transaction. The rates of simple interest are pitched so high in order to enable the lender to allow a long term of grace to the debtor without loss. The understanding is that, if the debtor is unable to pay, he shall not be pressed for the money. Under the old Limitation Law the practice is said to have been that the debtor, even if he paid nothing, was not sued or called upon to renew until the 12 years' limitation was about to expire, and that then he was only sued under the provision of *Damdupat* for double the principal sum lent. In other words, on a promissory note for Rs. 100 at 25 per cent, payable on demand, the creditor did not use his legal rights to a greater extent than at the end of 12 years to sue for Rs. 200; that is to say, instead of treating the contract as one to pay Rs. 100 at 25 per cent on demand, he treated it as one to pay Rs. 100 at about 5 per cent on demand. When the debtor was in a position to pay, the creditor probably got in his interest annually, and thus was able to obtain compound interest for his money. While the debtor was insolvent and could pay little or nothing, such a practice had the effect of a rough insolvency law. It amounted practically to the creditor striking off annually such part of his debt as the debtor was unable from poverty to pay. The new Limitation Law compels the creditor to renew oftener than he did before; and the effect, no doubt, is that debtors have now to pay compound interest in a great many cases where formerly they would only have paid simple interest. This effect ought, of course, to be balanced by a corresponding reduction in the rates of interest. If lenders obtain compound interest more frequently than they did before they ought to be content with lower rates of simple interest. But it is evident that such a reduction in the rates of interest can only be brought about by a slow and roundabout process, namely, by increased competition, attracted by the increased profits of the trade, breaking down the old customary rates.

109. We are unable then to avoid the conclusion that the reduction of the period of limitation has been the cause of considerable hardship to the debtor. The question follows whether it is desirable to alter the law in this respect, and to return to the old period. Our opinion is that for the following reasons it is not desirable to do so. In the first place, there is no law in the statute book which it is so desirable to keep free from change as the Limitation Law. There have been two Limitation Acts in the last 16 years, and the present Act is only five years old. Secondly, for the reasons given at the head of this section, we

conceive that, if creditor and debtor stand on fair terms with each other, a short limitation is advantageous to both parties. Thirdly, we believe that the present hardship results from causes which will in time work out their own remedy. We are of opinion, however, that something may be done to relieve the present hardship by providing that bonds and other instruments written by the agency, which we propose should be appointed for the purpose, should acquire the extended limitation given to 'registered' instruments by the Limitation Act. The period for unsecured debts will then be extended from three to six years. There is no doubt that in the case of the agricultural debtor there are special reasons for considering an easy term of limitation desirable, for the ryot borrows chiefly against his annual income, and this annual income is uncertain.

VI - FRAUDS.

(a) - Alleged practices

110. Among the causes that produce a feeling of hostility on the part of the debtor towards the moneylender, is the general belief that the money-lenders cheat them in various ways. The most common practice is said to be that of omitting to give credit for payments made by the debtor. Written receipts, though often mentioned in bonds as necessary for the proof payments, are in practice never given by the money-lenders. The only provision of the law on the subject is the clause of the Stamp Act, which makes it compulsory to give a receipt for a sum of Rs. 20 or more. The clause as it stands, might be held to apply to money payments only, but in any case it is a dead-letter as regards the dealings of sowkar and ryot. The latter, when he makes delivery of produce to the sowkar, is not in a position to insist upon a receipt.

Of a similar character is the practice of refusing to show an account. Many sowkars do not keep such accounts as would be intelligible to a ryot, but none ever do more than come to a rough settlement at long intervals, usually when some new form is to be given to the debt. One ryot stated before the Commission that his sowkar had told him he could not spare time to make out an account, and if the ryot insisted he should have to charge him 10 per cent for the trouble. It has been mentioned that the mortgagee as a rule keeps no account of receipts during his possession of land, even when the interest on the debt is at specified rate. This practice enables the sowkar to omit credits for part payments when so minded. The Sub-Judge of Tásgaon says:- "The creditor in some cases gives credit for whatever little he receives, but there is nothing to convince the court or the illiterate debtor ** that he has certainly given credit for all the sums he has received." The Tálegaon Sub-Judge writes: - "The creditors, as a rule, hardly ever pass receipts for money received on liquidation of debts. The onus of proof lies upon the defendant, who being unable, through ignorance and other reasons "to prove the contention, is often obliged to pay his creditor again". The Pátas Sub-Judge in his notes of a case tried in his Court, says:- "Another fact established in this case is that, although the plaintiff admitted that he recovered Rs. 80 a month or two "after the bond, yet he charged interest for the whole Rs. 200 to date of suit, and credited Rs. 80 as if it had been received on the date of suit. This is the practice generally prevalent, viz., while calculating interest for the whole amount due from defendant to date of suit, no reduction is allowed for interest for part payments made before suit, giving credit for the amount as if the same had been paid on the date of suit."

That the ryot does not receive the consideration, named in the bond is a common complaint. It has been noted above that the deduction of discount and premium is usual, and also that the

ryot generally holds himself estopped from pleading want of consideration in the case of claims on a registered bond.

The complaint that sowkars obtain bonds in satisfaction of decrees, and then enforce the latter has already been noted in the extracts quoted regarding abuse of decrees; it is also believed that they retain and sue upon bonds which have been cancelled by the passing of new ones. It is certain at least that they often retain such bonds. In the proceedings of the police resulting from the ryots it was found that large numbers of the papers extorted by the rioters from the sowkars were superseded bonds, but none of them were found to be cancelled. The sowkars are also accused of imposing upon the ryots in various ways as, for instance, by inducing them to make contracts by promising some reservation in their use which afterwards they disregard, or by inserting conditions which they know to be illegal in order to frighten the debtor or to induce him to refrain from contesting a claim in court, or, when a suit has been filed, by persuading the debtor not to oppose it. In the execution of decrees they are accused of procuring seizure of property not belonging to the debtor on the chance of the real owner paying something to redeem it in order to save himself the trouble and expense of a petition to the court.

111. These and similar fraudulent practices are illustrated in the Appendices; their impunity is made possible only by the ignorance and helplessness of the Kunbi which places legal remedies practically beyond his reach. Actual forgery is no doubt occasionally committed by the moneylender, and he has recourse to false evidence and subornation of witnesses; but such offences are not confined to the sowkar class. As most constantly using the civil court, and most experienced in its proceedings, the sowkar class has no doubt more often occasion to use the means which all are too ready to have recourse to in judicial business. The element of gross criminality is hardly sufficient to be by itself a cause of serious mischief, though it must be admitted that those moneylenders whose reputation in this respect is most evil are among the most successful in money making, and that they enjoy the fruits of their dishonesty in comparative impunity. To a sowkar, who is not thoroughly degraded, there is little temptation to commit serious fraud; the powers given him by the law are quite sufficient for his purposes without help from illegal weapons.

It is not surprising that the debtor, as is reported, sometimes endeavours to meet fraud with fraud. There is a strong concurrent opinion of local officers who have written on the subject, that the relations of the sowkar and ryot have been productive of considerable demoralisation of the latter. The sub-judges state that fictitious transfers of property and other fraudulent practices, such as pleading that bonds are false when they are really genuine, and tendering false receipts in evidence, are resorted to. It is also said that the ryots who know how to use these weapons against the Marwari are prosperous. But the contest is unequal. It requires some intelligence to use the resources of fraud and falsehood with any effect against the creditor; and, as we have seen, it is only in a small minority of cases that the debtor ventures into courts to try conclusions.

(b) - Is prevention possible?

112. The frauds to be provided against are of two classes:- (1) fraud as to the bond; (2) fraud as to the accounts. To prevent fraud of the first kind the only law in force in India is the Registration Act, which, roughly speaking, provides only for documents relating to immovable property above Rs. 100 in value. In most other countries the provisions against this kind of fraud are much more extended. In France the Code Napoleon (Article 2,127) provides that a mortgage can only be made by a deed passed before two notaries, or before one notary and two witnesses: also (Article 2,134) that all liens on immovables take order only from the date of registration: also (Article

2,154) that registration keeps alive the lien or mortgage only during ten years. Registration of all sales and other liens of immovables is, or lately was, made compulsory by the following Codes, namely, Austria, Holland, Russia, Ionian Islands, Prussia, the Roman States, Belgium, Baden, Hamburgh, Saxony, the United States, the Cantons of Vaud, Geneva, Valais, Saint Gall and Soleure, Louisiana, Haiti, Bolivia, Germany, Bavaria, Greece. In Denmark, Norway, and Sweden, such deeds, must be read publicly in court and recorded.

113. The Code Napoleon, Article 1,341, provides that every transaction (*acte*) relating to all things exceeding 150 francs in value must be made before a notary or by a writing under private signature, and oral evidence is not admissible to prove such transactions. Article 1,325 provides that acts under private signature which contain synallagmatical agreements are not valid, unless there has been made a number of originals equal to that of the parties having a distinct interest. Article 1,326 provides that an act under private signature by which one single party binds himself to pay a sum of money or a thing capable of being valued, must be written throughout in the hand of the subscriber, or he must, besides his signature, write the word *bon* or *approuvé*, and the sum or quantity of the thing in full, except in the case of tradesmen, artisans, labourers, vine-dressers, day-labourers, and servants. Several Codes follow the Code Napoleon in excluding oral evidence as to transactions. In most of the codes named above limits are fixed to the value of property which can be dealt with without written instrument and in England section 17 of the Statute of Frauds provides that a contract for the sale of goods of the value of 10*l* must be in writing, or that part of the goods shall have been accepted by the purchaser, or part payment made. Section 4 provides that no action shall be brought on a promise to answer for the debt of another or on an agreement in consideration of marriage, or for the sale of lands, or any interest in lands, and on an agreement not to be performed within the year, unless such agreement, &c. is in writing and signed. Section 1 provides that certain leases, estates, &c. shall have the effect of leases, estates, &c. at will only, unless put in writing by the parties and signed by them. Several codes provide that certain contracts can only be made by means of a deed before a notary. In Russia leases of immovables, contracts to furnish, loans and contracts of service must be made before a notary, who is bound to keep a register, and is provided with a seal. If the contract of loan is not certified by a notary, the lender loses his right to interest, and his claim is postponed to that of other creditors.

Several of the codes make special provision for parties who are unable to read and write. Thus in Sardinia, it is provided that a deed by a person who cannot read or write is invalid unless signed by three witnesses, two of whom can write. In the Codes of Bolivia, Denmark, and Lucerne, it is provided that, there must be two witnesses who must read the document and explain its contents to the debtor. In Russia if the party cannot sign he must get the deed signed by his confessor or agent. By the Code of Friburg any party to a contract can claim that it should be reduced to writing, and when the other party cannot write that it may be made before a notary.

114. In England unqualified persons are prohibited from practicing as conveyancers under a penalty of 50*l*. In India there is no prohibition against the drawing of deeds by unlicensed persons, and the people who undertake this business are known to be often ill-qualified to perform it. In Oudh alone public notaries were appointed under rules laid down same years ago, and their appointment is said to have been popular. It thus appears that fewer precautions are taken in India for the prevention of fraud of the kind under consideration than in other civilised countries. A system of compulsory registration for all bonds was proposed in the Bombay Presidency in 1844,

and again in greater detail by Mr. Fraser Tytler in 1859. The objection was felt to be the inconvenience that would be caused to the public by too great interference with monetary transactions. This objection must of course always exist, but we think that something may be done in the direction required by the appointment of persons qualified to draw instruments at convenient distances over the country. With the appointment of such persons a simple system of registration may be combined. The object in view would be, not to introduce a novel system, but to regulate that now existing, by substituting for the present ill-qualified and irresponsible writers a qualified and responsible agency. We are of opinion that this object may be obtained with no appreciable sacrifice of public convenience and to the great advantage of public morality. As to the second class of frauds, namely, that relating to accounts, it seems to us reasonable that some simple means should be afforded to the debtor of compelling the delivery of receipts and accounts by his creditor.

VII. - THE ACTION OF THE CIVIL COURTS.

115. In the remarks of executive officers on the subject of indebtedness and of the oppression of the debtors, the evils complained of are frequently attributed to the "action of the civil courts". It appears to us that this expression is generally used without any intention of attaching personal blame to the judicial officers who constitute the courts dealing with the agricultural debtor. Indeed, such an intention has been repudiated by some of the officials who have used the expression. The practice of speaking of a particular branch of the law or administration by the name of its outward embodiment, the body of officials who represent it, is usual enough. There can be no doubt that in many cases where the "civil courts" are complained of as causing misery to the debtor, the real subject of complaint is the law those courts have to administer. If, as we hold, the powers of execution given by law to the creditor are oppressive, it is not surprising that the courts, through which those powers are exercised, should get the blame which properly attaches to the law. It must be observed that the law has to presume equality between the Sowkar and Kunbi. We have stated that the dealings between them are conducted not by accounts, but by bonds. The sowkar comes to our courts to enforce a written contract; this form of suit is one in which more than any other it is dangerous for any inequality between the parties to be lost sight of, and at the same time the method of dealing is one that is calculated more than any other to aggravate the disadvantages of the illiterate debtor unable to anticipate the future. The task of tracing transactions imbedded in a mass of bonds, the nucleus of the original consideration incrusted with accumulations of interest, premiums, stamps, and account balances, and carried through repeated renewals, would baffle an intelligent accountant; but such transactions are often the subject of the sowkar's claim in the civil court. The contrast between the position of the English minor, protected by law from the consequences of youthful folly, and the condition of the Kunbi, whose folly is life-long, has often been drawn. The analogy may be not be perfect, but the comparison illustrates the point to which we ask attention; and it may be well to note that the Kunbi attains his legal majority at 18 years of age, and executes bonds during minority which, though not binding, he supposes to be so. It may fairly be said that the terms upon which suitors stand to each other in the Deccan is such as to make it desirable that there, more than in most places, the courts should be fully capable of holding the balance evenly between the parties.

116. But we have further to consider whether the court in the strict sense, that is, the subordinate judicial staff who have to deal with agricultural debt generally, are in any way responsible for the mischief's complained of. On this head we may say at once that there is before us, in the reports of many of these judges, ample evidence of a strong desire on their part to alleviate the miseries of the indebted ryot; and, so far as we can judge, their responsibility for the wholesome operation of the laws and system they administer would not

be denied by any of them. But it is possible that the judicial staff, though actuated by the best intentions, may be prevented by special causes from doing justice between man and man to the full extent desirable, and it is necessary for us to consider whether any such causes have been at work in the Deccan. Under the head of *ex-parte* decrees we have remarked on the fact that the subordinate judges are generally overworked, and we have pointed out how this fact must operate injuriously on the debtor, first, by preventing the judge from giving full attention to his case when unrepresented by a pleader, and, secondly, by causing delay in the disposal of suits. We have also pointed out that the inaccessibility of the courts must often tend to keep debtors from appearing in them. There remains another cause which is often quoted. This is the alleged technicality and want of equity of the courts. The judges are said "to have given the people the dry bones of law and procedure instead of the life-giving meat of equity and justice." Again, it is said; "the subordinate judge is quite aware of the inequitable nature of many of his decrees; but he is not a court of equity; he is bound to administer law, not justice, and is powerless to protect the ignorant Bheels." Upon these and similar statements the first remark we have to make is that it is a mistake to suppose that courts in India are bound only to administer law in the strict sense in which the term is here used. They are distinctly courts "of equity and good conscience" as well as of law. Secondly, it is certain that the laws of this country, as, for instance, the Contract Act, the Evidence Act, and the Civil Procedure Code, are as little open to the charge of technicality as any laws can possibly be. If, then, the complaints in this respect have any force, the blame must lie not with the law, but with the judges. It is quite conceivable that a subordinate judge, whose salary in many eases amounts only to Rs. 200 a month, and whose jurisdiction is as extensive, practically, as that of a high court judge, should, like all comparatively untrained and ill-educated lawyers, be inclined to view law in a technical narrow manner. It is unlikely that the class of men who can be got for such a salary should be able to take such enlarged views of the points that come before them as would naturally be taken by judges of a higher intellectual calibre and greater culture. If the subordinate judges fall short in this respect of the proper standard, the remedy is clearly not far to seek, and higher pay should be offered to attract better men.

App. A., p. 292.

117. There is another cause which requires mention here as tending to make the action of the courts oppressive to debtors, namely, the high costs of suits. The costs of suits fall upon their debtors, and so long as they do not exceed the actual cost of the litigation of which the debtors are the cause, the charge is fair. But the income from the 88 Subordinate Courts, last year, was Rs. 16,89,744; while the expenditure on the courts, including salaries of judges and all officers attached to the courts, was only Rs. 6,90,717. These courts thus yielded a net revenue of nearly 10 lakhs of rupees. It is impossible to ascertain precisely how much of this surplus is absorbed in the support of the Appellate Courts. But we need not say that the object of courts is not to yield a revenue, and it is plainly proper that any surplus that may be derived from them should be devoted to improving the administration of justice in them, and not to any other object. There appears reason to think that some of the miscellaneous court charges such as fees for copying, cost in execution and attachment processes, and the like - are unduly burdensome, and if this is the case they should be reduced.

CHAPTER VI. - THE IMMEDIATE OCCASION OF THE RIOTS.

Refusal of the sowkars to pay the revenues.

118. We have now considered in detail what appear to us to be the general causes in operation for some time. past in the disturbed districts which

by placing the debtor in a condition of unfair subjection to the money-lender aroused, or tended to arouse, hostile feelings in him. It remains to consider what were the particular circumstances which threw those feelings into action in the form of the riots. We have shown how the pressure upon the ryot of measures for the recovery of debt, and the reluctance of the sowkar to make further advances, had been gradually increasing from 1869 to 1875. This reluctance gave rise to a proceeding which is hinted at in the newspaper extract quoted in the first chapter of the report, viz., the refusal of the sowkars to pay the second instalment of revenue falling due in February and March on account of lands, the produce of which they had received from their debtors. An order of Government in the Revenue Department, Resolution No. 726, 5th February 1875, framed plainly with a benevolent intention, had directed that in the case of a defaulting occupant process for recovery of land revenue should issue first against the movable property of the occupant, and that the land should not be subjected to sale until this had been disposed of. A sowkar, therefore, who had paid the first instalment in order to secure the produce could refuse to advance the second instalment without the risk of losing the land as his security, so long as the cultivator had movable property to cover the amount of the Government demand; this was done during last season by many money-lenders, who thereby aroused against themselves the vindictive feeling engendered by a sense of deliberate wrong.

119. Our attention has been especially directed by the letter of the Government of India to the Bombay Government, No. 995, of 9th July 1875, to the questions whether the riots were in any way connected with the re-settlement of the land revenue, and whether the rioters were acted upon by the agency of persons of position and education.

Enhancement of Government demand.

We have already observed that the enhancement of the Government demand in the Poona districts operated simultaneously with the fall in prices to contract the ryots' solvency. There can be no doubt as to the effect of such enhancement upon the indebted cultivator. By diminishing his profits it renders him less able to repay his present debts, and it also renders him less able to borrow. On the creditor its effect will be to diminish his income both as a creditor receiving the profits of his debtors' lands and in many cases also as a proprietor drawing income from land in his possession, He will seek to recoup himself for these losses in his income by pressing his demand upon the debtor, and he will reduce the amount of future loans in proportion to the reduction in his debtor's income. By these natural consequences we believe that the enhancement of the Government demand contributed in the Poona districts to aggravate the result of the fall in prices.

Influence of persons of position.

We have not found any reason to believe that the ryots in committing themselves to the outbreak were as a body acted upon by persons of higher position and education. Among the influential classes there were many who would find their interest in the ruin of the Marwari or Guzar money-lenders; such were those who, like the Deshmukh of Kardeh, might expect on such a contingency to be saved from ruin themselves, and the large classes of Brahmins who formerly supplied many members of the banking and money-lending class, but who have not been able to compete with the more practised and unscrupulous foreigner. There is no evidence that the movement which culminated in the riots was organised or fostered by such persons with any comprehensive design, but it has been made apparent that in some cases the rioters had the support and countenance of persons of influence in their neighbourhood.

Encouragement from a band of outlaws.

120. There had been during 1874 a band of Koli outlaws committing dacoities on the hills of the western districts of Poona and Nagar. Their outrages were almost entirely perpetrated against the sowkar class, and, owing to the terrorism they created, a large tract of country enjoyed complete immunity from the exactions of Marwari creditors and their agents for many months. It is very possible that this example was an encouragement to those harassed by Marwari creditors in the neighbouring districts.

Circulation of a story.

A circumstance which perhaps more than any other precipitated the outbreak was the circulation of a story, which would seem too absurd to obtain belief even amongst the most ignorant, to any one unacquainted with the people or with the history of the Santhal rebellion or the Mutiny of 1857. The most popular form of the story was that an English *sahib*, who had been sold up by a Marwari creditor, had petitioned Her Majesty the Queen on the subject, and that she had sent out orders that the Marwaris were to give up their bonds. As more briefly told and largely believed, even by the more educated people of the villages, the story was condensed into the simple form that, on a report from India, orders had come from England that the Marwaris were to have their bonds taken from them. In some form or other this report was circulated, and a belief established that, acting under orders from England, the Government. officers would connive at the extortion of their bonds from the sowkars. It is somewhat remarkable that a somewhat similar belief was entertained by the Santhals, whose rebellion in 1855 originated in similar causes.

Official inquiry as to money-lending.

121. During 1874 the district officers had been called upon to furnish information regarding the people of their districts for the officer compiling the gazetteer of the Presidency. Amongst other subjects the business of the money-lender, the leading characteristics of his professional dealings, and his relations to the agricultural class had been inquired into. It is impossible to suppose that the fact of such an inquiry being made should not become known through questions referred to subordinate officials and in other ways; the fact becoming known, the object of the inquiry would be canvassed and most surely misapprehended by the masses of ignorant debtors, and in this way it may well be supposed that the absurd rumours above described being associated with the actual fact of the inquiry into sowkars' dealings would receive more ready credence. "The Government through the district officers had heard of the ill-treatment of its ryots by the sowkars, had caused inquiry to be made, and had now given an order which would redress their wrongs."

CHAPTER VII - REMEDIES RECOMMENDED BY THE COMMISSION.

122. Remedies for the evils resulting from indebtedness may be sought either in the removal or mitigation of the causes which lead to debt or in the removal or mitigation of its consequences.

Poverty.

Beginning with the causes of indebtedness as described above in Chapter III, we find poverty associated with unfavourable conditions of soil and climate as one of the causes. The only possible mitigation of this cause appears to be the improvement of the conditions of agriculture by irrigation; but we have seen that the incubus of debt requires to be removed before the ryots can be expected to avail themselves largely of such means. It might however, we are of opinion, be well for Government to consider whether the rules for carrying into effect the provisions of the Land Improvement Act might be modified in such a

manner as to make the help which Government is ready to give under that Act more available to the ryot than it is now found to be.

Ignorance.

123. The next cause of indebtedness is ignorance and improvidence. The natural remedy for ignorance is education. Experience has shown that from this no speedy improvement can be hoped. For the purpose of this inquiry we must assume not only that the Kunbi is uneducated, but that he will continue to remain so. Improvidence seems to follow as a consequence of ignorance. The expenditure in marriages and on similar occasions will, it may be hoped, gradually decrease (as it has been decreasing for some time past), and we have already recorded our opinion that if the Kunbi were not encumbered with debt even the present expenditure would not be excessive. In the measures which we shall propose below will be found one which we believe will go far to protect the ryot from the immediate consequences of his ignorance.

Increase of population.

124. The increase of population as a cause of debt can only be met by increasing the production of the soil or by emigration. We have seen that the former relief is for the present barred by the obstruction of present indebtedness and want of capital. But the introduction of canal irrigation cannot fail in time to change the face of a great part of the country. The experience of the North-west Provinces has shown that, though there may be reluctance at first to use canal water, the pressure of bad seasons sooner or later compels the ryot to make the experiment, and the reluctance is then overcome.

Rigid revenue system.

125. The fixed revenue demand associated with variation of season is another cause of indebtedness. We do not at all under-estimate the importance of fixity of demand in the land revenue, but we question whether this advantage is not purchased too dearly by the ryots of a large portion of the disturbed district, perhaps also by the Government itself; for the Government limits its assessment in consideration of bad seasons, but is nevertheless forced to give remissions in years of drought. We will not refer to the frequent remissions during the early period of the late survey settlement in the eastern districts of Poona; but we note that large remissions were given in Indápur and Bhimthari in 1866-67 and again in 1871. The local peculiarities of the district then cannot be ignored; but at present they are recognised only in extreme cases, and only in the direction of reduction, never of enhancement. On the strict principles of the settlement, remissions should never be given. If these principles are departed from, it would appear reasonable that Government, which shares the loss in years of drought, should also share the profit in the years of great plenty. If it were possible to introduce a more elastic system than the present, which should yet be governed by fixed principles and avoid haphazard remissions, we believe that both the ryot and Government would in the end be gainers. This question is under consideration by the Government of the North-west Provinces with regard to its Bundelcund districts, which labour under the same disadvantages of climate. It is a question with the details of which we are hardly called upon to deal, but we believe it to be deserving of careful consideration, with the view to relieving Government of the responsibility, however indirect, of contributing in some measure to the ryots' embarrassments. As the outturn of produce in these "drought-stricken" districts varies directly with the quantity and timeliness of the rain-fall, and as these are matters which can be accurately ascertained, it may be possible that some system of adjusting the Government demand to the ryots' capacity within reasonable limits might be made to work without being open to the objection of uncertainty.

App. C., p. 289.

We may note here that in the Madras Presidency, where a Ryotwari Settlement exists, a system of annual remissions for loss and failure of crops, and for land falling waste through causes beyond the control of the ryot, is in force. The remissions range annually from 2 to 10 per cent. of the gross demand, which is about Rs. 40,000,000. The remissions for loss and failure of crops are granted in the form of a percentage on all lands which have suffered. No attempt is made to estimate individual losses; but the rate of remission, when necessity arises, is determined by the examination by local officers of a sufficient number of fields. The system is stated to work well. For the area of uncertain rainfall in the Deccan we should however be disposed to prefer a system of greater certainty, and pne less dependent on local investigations. We may also note, with reference to the rigidity of the demand in the Deccan upon the persons (*App. C., p. 290*.) actually cultivating the soil, that in the North-west Provinces, where the money-rents paid by the cultivators generally fall short, as the assessment does here, of the full rent of the land, and where moreover seasons are "more certain, the rent-roll is still seldom collected in full by the landlords within the year. Either the landlord is merciful and makes allowance for the misfortunes or necessities of his tenants or the tenants are actually unable to pay in full. In most villages a balance of 5 or 10 per cent. will be left uncollected to be recovered in the next or following year, or in extreme cases to be dropped altogether. There is thus an elasticity in the demand; the landlord in fact acts as a buffer between the State and the cultivator.

Enhancement of assessment.

126. We are strongly of opinion that on revisions of assessment when the Government demand is enhanced more than 25 per cent., the increase should be imposed gradually, as is now the practice in the North-west Provinces. The injurious consequences of a sudden enhancement have been noticed above; these would be in a great measure averted by a gradual increase, and there does not appear to be any objection to this method at all outweighing its obvious advantages.

Defects of the present law.

127. Of the remedial measures which we submit, it will be seen that one (a Bill for the Prevention of Frauds) is intended to protect the ryots in the first stages of debt before the creditor has gone to the Civil Court. We have above represented the particular disadvantages under which the ryot is placed, and the fraudulent and unfair practices to which he is exposed by his ignorance and helplessness at these stages; and we have indicated the manner in which it seems possible to afford him protection. We have also noticed the effect of the Limitation Law as abused by the creditor. The statement of objects and reasons attached to the Bill will show how its provisions may he hoped to meet these particular evils. The second Draft Bill is a measure designed to meet the hardships incurred by the debtor through the excessive powers given to the decree holder under the present law, the absence of all protection to the insolvent debtor, and the use of decrees in *terrorem*.

Alteration in conduct of judicial business.

128. Together with this measure we have to suggest an important, alterations in the present system of conducting judicial business in the Subordinate Courts. The following figures show the proportion of debt-suits to other suits in the Subordinate Courts of Poona and Ahmednagar, and the number of debt-suits below Rs. 200 and above Rs. 100, and the number of suits below Rs. 100:-

Proportion of debt-suits to other suits.

	Debt-Suits.	All Suits.	Percentage.
Nagar	8,444	9,008	93.73
Poona	7,457	7,978	93.46

Proportion of suits below Rs. 200 to other debt-suits.

	Debt-Suits.	Below Rs. 200 and above Rs. 100.
Nagar	8,444	1,210
Poona	7,457	1,087

Proportion of suits below Rs. 100 to other suits.

	Debt-Suits.	Below Rs. 100.
Nagar	8,444	6,523
Poona	7,457	5,735

App. C., p. 291.

In the Appendix will be found an analysis of the suits disposed of by the sub-courts, with reference to the question of giving the sub-judges the powers of small cause courts; which still further illustrates the nature of their work. Many of the sub-judges have been given the powers of small cause courts, and it is understood to be the intention of Government to confer these powers generally as qualified judges are appointed. In districts such as Poona and Ahmednagar, it seems to be of urgent importance that judges so qualified and exercising these powers should be appointed as a preliminary to the change in their present method of conducting judicial business.

129. We have stated that one reason of the non appearance of the Kunbi defendant is his inability to leave home for any time without loss. Another is the expense of pleaders. We think it essential to any judicial reform in the courts which deal with small agricultural debts that they should be easily accessible to the defendant and his witnesses, and, consistently with due order, as little as possible attended by the formal official surroundings of a regular stationary tribunal. For this purpose it is of importance that the small debt cases should be heard as near to the residence of the parties as possible.

Village courts.

We therefore recommend that in the jurisdiction of each subordinate judge, village courts should be opened in a number of localities sufficient to place one within easy reach of every village, so that litigants may be able to go to the court in the morning and return home at night. The market towns would, if suitable accommodation existed, be the best localities; so that the judge might hold his court during the bazar days. One advantage of this system of hearing cases on the spot would be that the witnesses and parties would be much more likely to state the case according to the truth, because they would be subjected to the criticism and public opinion of their fellow-villagers. A man would often lie in a distant court where nobody knew him, who would not do so in the presence of all his friends who knew the real facts.

A sufficient number of clerks or registrars would have to be provided to receive plaints and answers and issue summonses and warrants, and generally to prepare the cases to be heard in the village courts for hearing by the subordinate judge. For the actual conduct of cases the present establishments of the subordinate judges should supply a sufficient staff. The procedure in all small debt cases being that of a small cause court, the record would not require much labour. The subordinate judge should visit each court at stated intervals, the list of cases for hearing at each being published beforehand. We would recommend that the patel of every village should be made an officer of the civil court, to be present and to attest the execution of all processes, service of summonses, and such duties, for which the payment of a small fee would be sufficient. The executive portion of civil judicial business has in our opinion not benefitted by being conducted altogether independently of the village executive. In former times, we are told by a native judicial officer of experience, a patel would report to the munsif the conduct of a judgment-debtor endeavouring to make away with his property; now the

sympathy of the village official is rather inclined to the other side. In order to carry out these changes no alteration in the law appears to be necessary.

App A., pp. 278-291. Special pleader for illiterate defendants.

130. It has been suggested by officials to whose opinion we attach weight that a pleader should be appointed specially to represent the agricultural and illiterate defendants. We see no valid objection to such a measure, but prefer to confine our recommendations on the subject of the conduct of small debt cases to the proposals above made, hoping that, if the other measures which we submit are carried out, the defendants themselves may be more able and willing to appear in court when they have an answer to a suit; and trusting also that the subordinate judges will be able to deal with debt cases, as they ought to be presented under an improved system of trade, without the assistance of pleaders. The appointment of a pleader to represent illiterate defendants is a measure the advisability of which may be determined by experience.

Draft Bill for amending execution of decrees.

The Draft Bill for amending the law regarding execution of decrees contains provisions which may, we think, be safely made applicable to the whole of India. These are:-

1. The abolition of imprisonment for debt.
2. The exemption of necessaries from sale in execution.
3. The provisions protecting the judgment-debtor from a wrong use of a decree and making the decree a *finis litis.*
4. The limitation of decrees.

As to the detailed provisions regarding the sale of immovable property we are unwilling to hazard an opinion that they can be made of general application. The questions involved are very numerous, and require a much more extended and minute inquiry than we have been able to bestow. As to the advisability of inquiry into the extent of a judgment-debtor's property before land is sold, we have little or no question that such a provision of law would be highly beneficial everywhere. As to the method by which the inquiry should be made and the other incidents of the procedure which the draft bill contains we feel that these subjects require the maturest consideration and reference to the best judicial authorities before any measure generally applicable could be resolved on.

132. Regarding the general provisions of the Draft Bill little remains to be said which has not already been anticipated in our remarks on the evils which they are intended to remedy. As to imprisonment and protection to the debtor's necessaries, it is quite unnecessary to do more than refer to those remarks. The provisions relating to the sale of immovable property present the following features which call for remark:-

1st. That immovable property should be sold only by order of-the district court and after inquiry.

It would be manifestly impossible for the subordinate court, which is fully occupied with small debt cases, to conduct the inquiries which we advocate. If, as may be expected under an improved system of money dealings and with a more accessible court, more debt cases are defended the time of the sub-judge will be mainly occupied in disposing of such cases. The member of the district court, to whom the duty of making inquiries would fall, would be better able to deal with points of law than the sub-judge, and such points would be frequent. The small cause court judges cannot now order sale of immovable property in satisfaction of a decree, and the sub-judge who would sit in a small cause court would have to transfer the decree for execution. It is not desirable to let the sale of land remain as at present a process of no more responsibility to the judge or difficulty to the decree holder than,

as the native, quoted by Mr. Pedder, puts it, "the sale of a bullock or a turban". As regards the method provided in the Draft Bill for a partial sale of the interest in land, we would observe that it is not open to the objections above stated against the *temporary* alienation of the whole. The other alternative processes allowed by the present law are open to the court; but this might, we think, be safely added. The right of pre-emption given to the collector offers some security against unnecessary sales being brought about by combination or fraud, for within safe limits the Government would probably be willing to sanction what would practically amount to enhancement of the assessment to a rackrent.

133. Regarding the provisions drafted to make the decree final and to prevent its abuse, we quote the following extract from the Administration Report of the Central Provinces for 1874-75 :-

Bonds in adjustment of decrees.

> "The point to be determined seems to be this, whether a decree is a final settlement of a transaction, or whether in the same way as a decree supersedes an old contract or agreement, either by decreeing its enforcement or some penalty in lieu thereof, a decree itself can be superseded by a private agreement between the parties made without the cognizance of the court which passed the decree. It seems difficult to hold the latter view; first, because the Code of Procedure lays down that a payment on a decree must be made through the court, and if not so made shall not be recognised by the court; hence a decree holder, if he obtained payment or part payment with a fresh bond from his debtor, might take out execution of his decree, while the court could not give the debtor the benefit of any payment he had made, and the creditor would afterwards again sue on his fresh bond.
>
> "But if it be lawful to supersede a decree by a fresh bond, of what use is it for the Committee revising the Code of Procedure to suggest that no decree shall remain alive beyond 12 years? It would be no relief whatever to debtors in the Central Provinces, where it is believed that a very large proportion of decrees are, immediately on being obtained, superseded by fresh bonds, and thus the deciding of a suit and the passing of a decree are not by any means the end of a transaction, but only one stage of debt case which is for ever before the courts. In this case there is no *finitis litis*, and this would explain also why there are so many civil suits in these provinces, so many instituted year after year. They are in great measure only the same cases coming up over and over again."

On the limitation of decrees to six years we have to note that in the new Draft Procedure Bill it is proposed to fix a limit of 12 years, and that in the Bengal rent law, (Act X of 1859) decrees of under Rs. 500 in value are limited to three years.

134. In the present state of the law an Insolvency Act is in our opinion urgently needed. If the changes which we recommend in the law for the execution of decrees are carried out, the need of an Insolvency Act will, we think, be much lessened. As it is impossible to provide any insolvency law, which would be restricted in its application to the agricultural debtor class with whom we are concerned, we do not find it in our power to make any specific proposals regarding such a measure, nor do we consider that, so far as the needs of this class are concerned, this subject presents any great difficulties.

Objections to proposed measures.

135. Measures such as those which we advocate may be objected to on the ground that, as they directly tend to reduce the sowkar's security by limiting his powers of recovery, they will raise the rate of interest. The limitation of the powers