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Manufacturing Sector Productivity in West Bengal across Phases of Liberalisation During 1981- 97

Maniklal Adhikary, Ritwik Mazumder*

Abstract

In this paper, the authors study how different policy regimes affected factor productivity growth (partial and total) in the manufacturing sector as a whole in West Bengal during the period 1981-97. First, strong liberalisation (1991-92 to 1997-98) experienced a remarkable positive impact on growth rates of value added, employment and average products of labour and capital. The study has favoured the premise that strong liberalisation programme of 1991 resulted in the growth of labour in excess of capital, leading to a sharp fall in capital-intensity growth. Second, Total Factor Productivity Growth (TFPG) exhibited a rising trend all through the 17-year period starting from 1981. Growth rate of TFPG was the highest during the period of strong liberalisation. But the absolute TFPG figures were indicative of poor industrial performance. Third, technical progress was labour-intensive in nature during the post-1991 period. Finally, the apprehension that strong liberalisation would result in absolute decline in employment levels in the manufacturing sector seemed unfounded for the manufacturing sector in West Bengal.

Introduction and Objectives

It is recognised that the growth of factor productivity (partial and total) is the most crucial determinant of economic growth. Accordingly, for growth-oriented industrial strategies, growth of factor productivity plays a pivotal role. But, changes in policy regimes may affect the growth of manufacturing sector productivity.

The Economic Reforms package of 1991 showed some fundamental changes in the Central Government's outlook of the Indian economy. Even partial implementation of the new economic policy resulted in severe deregulation of manufacturing industries. Domestic manufacturers were exposed to international competition through liberalisation of the domestic market. On the whole, the government intended to raise productivity and efficiency in Indian manufacturing sector by promoting competition. Clearly, the economic reforms policy of 1991 was biased towards the manufacturing sector.

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All through the latter half of the 20th Century, all South-East Asian countries were trying to accelerate the pace of industrialisation. China took up the 'Go Global' slogan long before India did and was able to industrialise faster. China's principal growth strategy was based on export-oriented industrialisation just like that in the other South-East Asian nations (Dreze and Sen 1995; Sachs, Varshney and Bajpai 1999). To the policy makers of these nations, industrialisation was synonymous with economic growth and development.

Apparently, the performance of manufacturing sector in West Bengal during the Left Front regime has been poor compared to some other states like Maharashtra and Gujarat. The liberalisation policy is still opposed harshly by the state leadership. The policies associated with efficiency promotion like automation, computerisation etc, have also been discouraged. Hence, it would be interesting to observe how economic liberalisation has changed the pattern of growth of factor productivity in the manufacturing sector in a state that generally had been vocal against economic liberalisation. We focus here on the growth of factor productivity in the manufacturing sector as a whole in West Bengal.

There have been a number of studies on spatial and inter-temporal variations in manufacturing sector performance and productivity in India. A brief overview of a few leading works in this area would build up an approach to this paper. Ahluwalia (1985) estimated Solow and Trans-log indices of TFPG at different levels of industrial disaggregation for the period 1959-60 to 1979-80 with two sub-periods 1959-65 and 1966-79. She made four alternative estimates of TFPG for the entire manufacturing sector and for use-based and input-based classification of industries. Her study reveals declining TFPG during the first and second sub-periods, interpreted as decline in productivity performance. Her observations support the view that industrial performance did not appear to have deteriorated after 1965 though there was some decline in efficiency of factor use. Goldar and Seth (1989) studied trends in industrial output in 12 major states for the period 1960-61 to 1985-86. The purpose of their study was to investigate the causes of industrial deceleration since mid-sixties. Their work revealed that all 12 states experienced deceleration in the rate of industrial growth after mid-sixties and most states experienced a recovery after mid-seventies. They concluded that, in general, those states which gained more from public sector investment during 1950-60, experienced greater deceleration in the rate of industrial growth after mid-seventies. Pradhan and Barik (1998) observed trends in TFPG over a longer period ranging from 1963-64 to 1992-93 in selected polluting industries. Their study revealed a positive trend of TFPG with a marked deceleration in the 1980s. An important finding of their exercise was that TFPG in Indian manufacturing followed a fluctuating path. Based on ASI data for the period 1974-75 to 1988-89, Coondoo, Neogi and Ghosh (1993) observed that capital intensity was rising at a pace faster than that of labour productivity in Indian manufacturing

industries. According to this study, the rise in labour productivity was the result of rising capital intensity and not due to pure productivity increase. Neogi and Ghosh (1994) found that technical efficiency in Indian manufacturing was declining over time till the late 1980s. Further, Neogi and Ghosh (1998) studied the impact of liberalisation on the performance of selected industries on the basis of firm level data over the period 1989 to 1994. They concluded that productivity growth and efficiency levels did not improve in these industries to the expectation level during this post-liberalisation period. Very similar were the conclusions drawn in more recent studies conducted by Adhikary and Mazumder (2004.a and 2005). They showed that efficiency levels in the entire manufacturing sector in West Bengal did not rise during post-reform years vis-à-vis pre-reform years. However, they found declining TFP at the state level during pre-reform years in West Bengal but rising TFP during post-reform years.

The present study is intended to observe the pattern of manufacturing sector productivity growth in West Bengal during three distinct phases of liberalisation since 1981-82. In particular, this paper examines the nature of changes in productivity growth in manufacturing industries in West Bengal across different policy regimes during the period 1981-82 to 1997-98. The periods 1981-82 to 1984-85 and 1985-86 to 1990-91 have been considered as the two phases (regimes) of weak liberalisation (Regime 1 and Regime 2 respectively) and the rest of the time span (1991-92 to 1997-98), Regime 3, as the phase of strong liberalisation (Dutt 1993). We first consider the trends in the growth of average productivity of workers, capital and total factor productivity for Regimes 1, 2 and 3 and also, for the entire 17- year period. The growth of capital intensity (capital-worker ratio) and the capital-employee ratio have also been studied across Regimes. Like most Indian researchers in this field, we consider gross value added as a suitable substitute for output. TFPG is computed under Tornqvist index of growth accounting process. Finally, we look at the type of technical progress experienced by the manufacturing sector in the state. That is, we verify whether technical progress is of capital-saving type or contrary to it.

Section 2 describes models, methodology of estimation along with data sources. In section 3, we present empirical results along with brief discussions and in section 4, summary and conclusions.

Methodology and Data Sources

Following Poirier's (1974) spline function approach, the trend in the growth of several variables of interest has been looked into for different Regimes. Assuming a linear time trend, the postulated model is:

Regime1: $\ln Y_t = \alpha_1 + \beta_1 t + u_t$ for $t \leq 1985$

Regime2: $\ln Y_t = \alpha_2 + \beta_2 t + u_t$ for $1986 < t \leq 1991$ (2.1)

Regime3: $\ln Y_t = \alpha_3 + \beta_3 t + u_t$ for $1991 < t$

Let us define the following variables:

$$w_{1t} = t; \quad w_{2t} = \begin{cases} 0 \\ t-1985 \end{cases} \text{ if } \begin{matrix} t \leq 1985 \\ 1985 < t \end{matrix} \quad w_{3t} = \begin{cases} 0 \\ t-1991 \end{cases} \text{ if } \begin{matrix} t \leq 1991 \\ 1991 < t \end{matrix} \quad (2.1a)$$

and re-parameterise the function as

$$\ln Y_t = \alpha_1 + \delta_1 w_{1t} + \delta_2 w_{2t} + \delta_3 w_{3t} + u_t \qquad (2.2)$$

The expression $[\exp(\beta_i) - 1].100$ will yield the percentage growth rate for the i-th regime ($i = 1,2,3$), where $\beta_1 = \delta_1, \beta_2 = \delta_1 + \delta_2$ and $\beta_3 = \delta_1 + \delta_2 + \delta_3$. Equation (2.2) will be used to compute the growth rates of desired variables for different regimes. The variables, which capture the growth rates in the three different regimes, are w_{1t}, w_{2t} and w_{3t} respectively. The growth rate for the entire period 1981-82 to 1997-98 will be computed by using the following equation:

$$\ln Y_t = \alpha + \beta t + u_t \qquad (2.3)$$

The variables we shall consider have been listed below:

APW: Average productivity of workers; APE: Average productivity of employee; APK: Average productivity of capital; APNW: Average productivity of non-production workers; CAPINW: Capital intensity - capital stock per worker; CAPINE: Capital intensity - capital stock per employee; TFPG: Total factor productivity growth.

In order to compute TFPG, we use Tornqvist Index. Tornqvist index is an important variant of the divisia index used by Solow (1957). Under the specification of a translog production function under constant returns to scale, Diewert (1976) proved that the Tornqvist index was the exact measure of technical change. Assuming a time variant transcendental logarithmic production function as

$$\ln Y_t = \alpha_0 + \alpha_t t + \frac{1}{2}\beta_{tt}t^2 + \sum_{i=1}^{k}\alpha_i \ln X_i + \frac{1}{2}\sum_i\sum_j \beta_{ij}\ln X_i \ln X_j + \sum_{i=1}^{k}\beta_{it}t \ln X_i + u_t \quad (2.4)$$

Tornqvist approximation of the divisia index, as introduced by Jorgensen and Grilliches (1967), can be written as

$$\overline{DI}_t = \ln\left(\frac{Y_t}{Y_{t-1}}\right) - \sum_{i=1}^{k}\overline{Sh}_i \ln\left(\frac{X_{i,t}}{X_{i,t-1}}\right) \qquad (2.5)$$

where $\overline{Sh_i} = \frac{1}{2}\left[Sh_{i,t} + Sh_{i,t-1}\right]$. The average rate of technical change, $\overline{DI_t}$, is also called translog index of technical change. In the context of the present study, Y_t represents gross value added, X_i's represent the two inputs considered in this paper, namely, capital stock and workers. Sh_i is the share of the ith factor in gross value added. Here, the share of workers (read Sh_L or labour share in value added) is taken as wage share in gross value added (workers' share) and share of capital (read Sh_K) is simply computed as, one minus wage share in gross value added. Evidently, it is assumed with due reservations that competitive equilibrium is prevailing and factor prices are paid according to their marginal products so that factor shares in value added are their respective elasticities. We have worked with the simple two-input version of the TFPG formula as in (2.5). The two-input version (incorporating labour and capital only) of the Tornqvist Index as in (2.5), can be commonly found in Ahluwalia (1991). This is given in (2.5a). It is appropriate for discrete time-point data.

$$\Delta \ln TFP = \Delta \ln Y(t) - [(sh_L(t) + sh_L(t-1))/2].\Delta \ln L(t) -$$
$$[(\{1 - sh_L(t)\} + \{1 - sh_L(t-1)\})/2].\Delta \ln K(t) \tag{2.5a}$$

It should be noted that the trans-log measure of the total factor productivity growth is not significantly different from the Solow residual measure under two conditions. First, the elasticity of substitution is not significantly different from 1. Second, variation in the growth rates of inputs over time is not significant (see Ahluwalia 1991). Using equation (2.5a), we shall compute TFPG.

Total factor productivity and the rate of technical progress are synonymous in this framework. The higher the rate of technical progress, the greater will be the growth of output. Hence, the estimation of the rate of technical progress and its input bias is relevant. Under the specification of production function as in (2.4), the expression for the rate of technical progress (RTP or TFPG) is given as

$$\frac{\partial \ln Y}{\partial t} = \alpha_t + \beta_{tt}t + \sum_i \beta_{it} \ln X_i \tag{2.6}$$

where α_t stands for the rate of autonomous growth of total factor productivity, β_{it} for the bias in the growth of total factor productivity and β_{tt} for the rate of change in the growth of total factor productivity. Technical progress is Hicks neutral if $\beta_{it} = 0$. If $\beta_{it} > 0$, technical progress is non-neutral in the Hicksian sense and is biased in favour of the i-th input.

Assuming a transcendental logarithmic production function as (2.4), output elasticity with respect to i-th endogenous input is

$$\eta_i = \frac{\partial \ln Y_t}{\partial \ln X_i} = \alpha_i + \sum_j \beta_{ij} \ln X_j + \beta_{it}t \tag{2.7}$$

Differentiating (2.7) with respect to t yields, $\dfrac{\partial \eta_i}{\partial t} = \beta_{it}$

Thus, technical progress may increase or decrease the value of output elasticity with respect to *i*-th endogenous input depending on the sign of β_{it}. The rate of technical progress is defined in (2.6). Under the strong assumptions that competitive equilibrium prevails and factor prices are paid according to their marginal products, we have

$$\eta_i = \frac{\partial \ln y}{\partial \ln X_i} = \frac{\partial y}{\partial X_i}\frac{X_i}{y} = \frac{w_i X_i}{py} = sh_i$$

where sh_i is the share of the *i*-th input in nominal output (gross value added in this study). Hence,

$$\frac{\partial \eta_i}{\partial t} = \frac{\partial (sh_i)}{\partial t} = \beta_{it},$$

We can also write,

$$X_i = sh_i \frac{py}{w_i}$$

$$\text{or,} \ln X_i = \ln sh_i + \ln p + \ln y - \ln w_i$$

Differentiating this expression with respect to *t* we have,

$$\frac{\partial \ln X_i}{\partial t} = \frac{\partial \ln sh_i}{\partial t} + \frac{\partial \ln y}{\partial t} = \frac{1}{sh_i}\frac{\partial (sh_i)}{\partial t} + RTP = \frac{1}{sh_i}\frac{\partial \eta_i}{\partial t} + RTP = \frac{1}{sh_i}\beta_{it} + RTP.$$

RTP is rate of technical progress, synonymous to TFPG in this study. Now, the amount of bias in technical progress with respect to the *i*-th input is,

$$BIAS_t(X) = \frac{1}{sh_i}\beta_{it} + RTP \tag{2.8}$$

For empirical estimation, we have used data from Annual Survey of Industries (ASI): *Summary Results for Factory Sector* (various issues), for the manufacturing sector of West Bengal for a period of 17- years (1981-82 to 1997-98). All industry groups at the two-digit level have been taken. Nominal values of all variables have been deflated by appropriate wholesale price indices from RBI: Report on Currency and Finance (various issues).

We deflated the gross value added of each two-digit industry group by the wholesale price index of output of the respective industry and then added the gross value added of all two-digit industries to get the real value added of the manufacturing sector as a whole. The standard double deflation method has not been used. The price indexes of machinery and equipment have been used to deflate the gross fixed capital stock at current prices. We have measured labour by

the number of workers engaged in production as also by the total number of employees as per ASI definition. Non-production workers have been computed by subtracting the number of production workers from total number of employees. The 17-year TFPG time series has been computed using the time series on: real gross value added (for output), number of workers (for labour), gross fixed capital stock at constant prices (for capital) and share of real-wages in real gross value added.

Admittedly, there is no satisfactory or universally accepted way of measuring capital stock (Ahluwalia 1991). Since the measurement of true economic depreciation is a very complex exercise, we chose to work with estimates of gross fixed capital stock. For the same reason, we declined to use the time series on net value added as reported by ASI. Gross value added has been found by deducting the value of total inputs from gross output (or value of output).

We have computed the gross fixed capital stock at constant prices by using the perpetual inventory accumulation (PIA) method (Goldsmith 1951). As regards the gross fixed capital stock at replacement cost for the benchmark year (1980-81), we have used the rule of thumb after Roychaudhury (1977), "doubling the value of fixed capital stock at book value at current prices for the benchmark year", to estimate the replacement cost figures of machinery and equipment. All through the study, the input 'labour' has been captured by the number of workers directly engaged in production or simply by production workers. The total number of employees has also been used in the study.

Empirical Results and Discussion

In West Bengal, both workers and employees have registered negative growth rates in all Regimes except in Regime 3 (Table 1). Strong liberalisation has raised the growth rate of workers. This is remarkable in view of the fact that it was growing negatively during the entire pre-1991 period. Non-production workers show the same pattern with an overall negative growth. But capital stock has always grown positively. Considering the entire 17-year period, there was a huge mismatch between growth rates of workers and capital inclined heavily towards the latter. A noteworthy observation: strong liberalisation has raised output growth tremendously, which was negligible in both Regimes 1 and 2. At the same time, the growth rate of capital stock fell steadily across Regimes and was lowest during the phase of strong liberalisation.

Regarding structural shifts in growth pattern, the output experienced a highly significant upward shift in Regime 3. Workers, employees and non-production workers all exhibited a declining trend throughout Regimes 1 and 2, only to be reversed in Regime 3. Capital, which went through a significant rising trend in Regime 1, suffered successive downward shifts (in terms of growth rate) during Regimes 2 and 3 (shift parameter was insignificant in Regime 3).

Table 1: Structural Shifts and Growth Rates of Value Added, Workers, Employees and Capital Stock in the Manufacturing Sector of West Bengal.

Dependent Variables	Constant	Coefficients for Regime			R^2 ($\bar{R}^2$)	d	Growth Rate of Regime (per cent)			
		1	2	3			1	2	3	Entire Period
Value Added	7.391 (150.12)**	0.015 (1.69)	0.002 (0.16)	0.073 (3.02)**	0.91 (0.89)	2.06	1.52	1.75	9.51	3.91
Workers	13.543 (391.67)**	-0.030 (-4.80)**	0.003 (0.33)	0.056 (3.28)**	0.76 (0.71)	2.08	-2.96	-2.64	2.96	-1.17
Employees	13.770 (399.56)**	-0.027 (-4.34)**	0.003 (0.28)	0.050 (2.92)*	0.73 (0.66)	1.79	-2.67	-2.40	2.56	-1.08
Non-Production Workers	12.176 (306.81)**	-0.016 (-2.28)*	0.001 (0.06)	0.026 (1.35)	0.45 (0.32)	1.15	-1.62	-1.56	1.07	-0.77
Capital	8.291 (321.52)**	0.102 (21.83)**	-0.019 (-2.61)*	-0.013 (-1.03)	0.99 (0.99)	2.08	10.72	8.61	7.20	9.72

Note: Figures in parentheses are estimated *t* values.

* Significant at 5 per cent level.

** Significant at 1 per cent level.

Growth of average product of workers (also that of employees) has been fastest in Regime 3 (Table 2). The same was true for employees and non-production workers. Thus, strong liberalisation raised the workers' productivity in West Bengal. After growing negatively during the first two Regimes, average product of capital in West Bengal registered positive growth in Regime 3, although it grew negatively over the entire period. Growth rate of capital intensity with respect to workers has been falling across Regimes, the growth rate being lowest in Regime 3. The picture was no different for capital intensity when employees were considered instead of workers. Capital stock was seen rising at a faster rate than value added; value added was rising at a faster rate than workers. Consequently, capital stock was rising faster than number of workers.

Tornqvist index of TFPG shows that the efficiency level of the manufacturing sector was poor in the state. All the structural shift parameters were insignificant. Even then, there was a hint of improvement in TFPG in Regime 3. Total factor productivity growth in the manufacturing sector was meager at the state level in West Bengal but not necessarily so at the industry level (see Adhikary and Mazumder 2004a, 2004b and 2005). Ahluwalia (1991) computed TFPG for each of the major industry groups at the two-digit (national) level for the period 1959-60 to 1985-86 and classified industries under high, moderate and low rate of TFPG. Her study revealed negative TFPG for industries such as iron and steel, food processing,

paper, non-ferrous metals, explosives, tyres and tubes, and petroleum and coal products over the 26-year period. Thus, negative TFPG was something common in Indian manufacturing though we did not observe this phenomenon for the manufacturing sector in West Bengal during the period studied. However, at the industry level, this might not be true. It was expected that high TFPG industries would co-exist alongside low TFPG industries. Nonetheless, Adhikary and Mazumder (2004b) verified that the jute industry in the state exhibited positive TFPG both during pre- and post-1991 years — the study period being identical to that in this paper.

Table 2: Structural Shifts and Growth Rates of Factor Productivities, Capital Intensity, and TFPG in the Manufacturing Sector of West Bengal.

	Constant	Coefficients for Regime					Growth Rate of Regime (per cent)			
		1	2	3	R^2 ($\bar{R}^2$)	D.W.	1	2	3	Entire Period
APW	-6.152	0.045	-0.001	0.018	0.92	2.24	4.62	4.51	6.36	5.08
	(-108.72)**	(4.41)**	(-0.06)	(0.63)	(0.90)					
APE	-6.379	0.042	-0.001	0.024	0.92	2.17	4.31	4.20	6.72	5.00
	(-113.78)**	(4.16)**	(-0.03)	(0.86)	(0.90)					
APNW	-4.785	0.031	0.002	0.047	0.90	1.93	3.20	3.36	8.35	4.69
	(-82.451)**	(3.00)*	(0.09)	(1.64)	(0.88)					
APK	-0.900	-0.087	0.021	0.087	0.92	2.19	-8.30	-6.31	2.16	-5.81
	(-14.049)**	(-7.48)**	(1.17)	(2.74)*	(0.90)					
CAPINW	-5.252	0.132	-0.022	-0.069	0.99	2.41	14.09	11.55	4.12	10.89
	(-134.98)**	(18.73)**	(-2.03)	(-3.59)**	(0.99)					
CAPINE	-5.478	0.129	-0.022	-0.063	0.99	2.18	13.75	11.28	4.53	10.81
	(-140.56)**	(18.28)**	(-1.97)	(-3.26)**	(0.99)					
TFPG (To-rnqvist)	0.029	-0.007	0.008	0.044	0.56	2.85	0.03	0.03	0.44	0.02
	(0.31)	(-0.44)	(0.29)	(0.96)	(0.39)					

Note: Figures in parentheses are estimated t values.

* Significant at 5 per cent level.

** Significant at 1 per cent level.

Table 3 presents the regression estimates of equation (2.6). With reference to Table 3, rate of technical progress appears declining, though statistically insignificant. We have refrained from commenting on the nature of bias in technical progress on account of statistically insignificant labour and capital coefficients. We have taken it as neutral in our present study. But the implications are interesting. There was a hint of a capital saving (bias in favour of labour) type of technical

progress during Regime 1. This was exactly reversed during Regime 2. This pattern has once again reversed in the period of strong liberalisation as we have observed an insignificant capital saving (labour using) type of technical progress. The entire 17-year period did not show any clear pattern as far as technical progress was concerned.

Table 3: Regression Estimates of Rate of Technical Progress in the Manufacturing Sector of West Bengal.

| Regime | Coefficients of | | | | R^2 | F | *d* | Amount of Bias in | | Nature of Technical Progress |
	Constant	Time	Capital	Labour				Capital	Labour	
Regime 1	8.445	0.048	-0.742	0.160	0.53	26.46	2.85	-2.03	0.25	Neutral
1981-85	(0.25)	(0.09)	(-0.16)	(0.15)						
Regime 2	13.803	-0.268	3.076	-2.914	0.85	31.38	2.24	7.29	-5.01	Neutral
1986-90	(0.24)	(-1.91)	(2.22)	(-0.63)						
Regime 3	3.588	0.057	-0.352	0.065	0.67	19.57	2.94	-0.53	0.25	Neutral
1991-97	(0.22)	(0.59)	(-0.39)	(0.07)						
Entire Pd	-7.028	-0.065	0.750	0.058	0.49	58.11	2.34	1.67	0.17	Neutral
1981-97	(-1.19)	(-1.11)	(1.29)	(0.16)						

Note: Figures in parentheses are estimated t values.

Summary and Conclusions

This paper has observed the pattern of manufacturing sector productivity growth in West Bengal across the three distinct phases of liberalisation during 1981-97. More specifically, the nature of changes in productivity growth in manufacturing industries in West Bengal has been observed across different policy regimes during the period 1981-82 to 1997-98. The periods 1981-82 to 1984-85 and 1985-86 to 1990-91 have been considered as the two phases (regimes) of weak liberalisation (Regime-1 and Regime-2 respectively) and the remaining years (1991-92 to 1997-98), Regime- 3, as the phase of strong liberalisation. Gross value-added has been taken as a proxy for output in value terms. The growth of total factor productivity (TFPG) has been computed under Tornqvist index of growth accounting process. Finally, we have verified whether technical progress is of capital-saving type or its converse.

First, strong liberalisation appeared to have a positive impact on growth of output in the manufacturing sector in West Bengal. Moreover, post-1991 (Regime 3) growth rates of workers and employees were clearly higher. Employment in the manufacturing sector was found declining (evident from the negative growth rate

of employees) throughout the period 1981-91. Strong liberalisation has undoubtedly reversed this trend. In other words, employment in the manufacturing sector declined during weak liberalisation but during strong liberalisation it increased. Growth rate of fixed capital fell in Regime 3. Liberalisation was expected to raise the capital growth relative to worker growth by promoting automation. Our observations, however, contradicted the expectations.

Second, growth rate of productivity of capital was highest during the period of strong liberalisation. Apparently, strong liberalisation raised the growth rates of productivities of labour and employee. Output growth in excess of growth of workers in West Bengal in Regime 3 can well explain this result.

Growth rate of capital intensity significantly declined during post-liberalisation era. This was also evident from the growth figures of capital and labour. We measured capital intensity in an aggregative sense. That is, we did not consider the firm-wise distribution of capital intensities. A possible explanation of declining capital-intensity growth runs on the following lines:

To register a decline in capital-intensity growth, it is not necessary that the techniques of production in the already established units be more labour absorbing or more capital saving than before (during the post-1991 period). It can well be that with liberalisation, the more labour-intensive sectors are dominant. As a result, the newly installed units (possibly more labour absorbing than those installed during pre-1991 years) have added more to total number of workers than to total capital stock leading to a sharp fall in growth rate of capital-labour ratio. To confirm this view, we need to observe the frequency distribution of firms according to capital-worker ratios both for pre-1991 and post-1991 years. Our hypothesis is supported if we find greater concentration of firms around a higher mean capital-worker ratio during pre-liberalisation years *vis-à-vis* greater concentration of firms around a lower mean capital-worker ratio during post-liberalisation years. This requires a firm level study, beyond the scope of the present undertaking.

Growth of TFPG was poor in the state. In fact, this was true for all industrially developed states (Adhikary and Mazumder 2004a). If TFPG is taken as an indicator of performance as well as efficiency, then strong liberalisation has benefited the manufacturing sector in West Bengal.

Third, regarding technical progress, we cannot make any comment with conviction on the direction of bias since both labour and capital coefficients are statistically insignificant. It appears that strong liberalisation raised labour intensity growth hinting at a bias towards labour-intensive technical progress. This can challenge the claim that strong liberalisation will displace workers for capital in the manufacturing sector. It is also clear from the growth figures of workers and capital — the observation being that strong liberalisation invariably reduced capital stock growth but raised workers' growth. Even if there have been closures of units (during post-1991), the employment loss has actually been over-compensated resulting in

a rise in the absolute level of employment. Consequently, the declining trend of employment in the manufacturing sector observed during the pre-1991 years has been reversed altogether.

The growth rate of number of workers was significantly positive only in the post-1991 period in West Bengal. We can explain this in terms of excess capacity utilisation during Regime 3. Presumably, strong liberalisation immensely raised the demand for industrial output (apparent from the high output growth figures during Regime 3). This necessitated employment absorption (in excess of capital goods) just to make use of the unutilised installed capacity. Furthermore, it explains the decline in growth rate of capital stock alongside a rise in employment growth rate in Regime 3. Strong liberalisation invariably raised employment growth. The establishment and full functioning of the Haldia Petrochemical Project along with its ancillary industries in the southern part of West Bengal during Regime 3 might as well explain the declining growth rate of capital intensity. Besides this, there was a huge climb in worker recruitment during post-1991 years in the dairy giant of the state, namely, Mother Dairy Calcutta. It was taken over by the West Bengal State Government after 1992-93. This effected a sharp rise in total employment in the dairy industry (broadly categorised under food-processing industries by ASI). The concern that strong liberalisation will result in absolute decline in employment levels in the manufacturing sector (by displacing labour) is not proven in West Bengal. Finally, the growth of TFPG (though positive) is poor and shows insignificant upward structural shifts across regimes.

A final remark: The study favours the assertion that the strong liberalisation programme of 1991 (the first wave of globalisation in India) resulted in the growth of workers in excess of capital stock leading to a sharp fall in capital-intensity growth in West Bengal. Even technical progress during the period of strong liberalisation was biased in favour of workers, though statistically insignificant. But, on the basis of this aggregative study on the manufacturing sector of West Bengal alone, it would be unwise to draw a credible conclusion involving the Indian industries at large.

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Applying NOAA Recommendation: A Contingent Valuation Study of Desirable Quality Water in Kolkata, India

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Abstract

Contingent Valuation (CV) surveys ask the respondents about their monetary values for non-market goods contingent upon the creation of a hypothetical market and the means of payment. Though CV as a method to value non-market goods has gained acceptance over time, it has also raised various debates on its applicability to put a value on non-market goods. The review panel of National Oceanic and Atmospheric Administration (NOAA) has made several suggestions to make a CV survey more effective and reliable. The present study applies NOAA guideline to estimate 'willingness to pay (WTP)' for the desirable quality water supplied by a private operator. The study is based on a survey of 500 households in Kolkata, India. The average WTP expressed by the respondents is found to be Rs 59.68 and Rs 49.28 per month per household for the dichotomous choice and open-ended follow-up question respectively. This paper examines how well the study followed the practices suggested by NOAA panel.

Introduction

Contingent Valuation (CV) is a useful tool and has gained more acceptance in recent time to measure the value of non-market goods and services. Wantrup, way back in 1947, suggested that information on demand for non-market goods could be obtained by asking individuals directly about their 'willingness to pay (WTP)' for successive increments in them. Davis, in 1963, designed and implemented the first CV survey to determine the value to hunters and wilderness lovers of a particular recreational area. Davis compared his CV findings with WTP based on travel cost approach and found that they yielded a quite similar result (Portney 1994). Later, Krutilla (1967) stressed the importance of such surveys to measure existence values of an environmental commodity.

The Department of Interior (DOI) sanctioned the use of CV technique to measure damages in 1986. In March 1989, the supertanker Exxon Valdez spilled

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11 million gallons of crude oil onto the Bligh Reef in Prince William Sound, Alaska. The accident raised the demand that Exxon be forced to pay for the lost non-use or existence values in addition to out-of-pocket losses suffered by fishermen, resort owners, tour operators and others directly and indirectly harmed by the accident according to DOI regulations. The oil-spill prompted the Federal Government to formulate the Oil Pollution Act of 1990. The new law directed the Department of Commerce acting through National Oceanic and Atmospheric Administration (NOAA) to formulate its own regulations governing damage assessment. The General Counsel of NOAA, Thomas Campbell, requested renowned economists like Kenneth Arrow and Robert Sollow to chair a panel of experts. The panel was asked to confine its attention solely to the potential reliability of the CV method. The NOAA panel met eight times between June and November of 1992. The panel submitted its report to NOAA on January 11, 1993. The report was published in the Federal Register on June 15, 1993. The panel concluded, "Contingent valuation studies can produce estimates reliable enough to be the starting point of a judicial process of damage assessment, including lost passive use values."

The present paper examines whether the benefits of desirable quality water can be estimated with a level of validity and reliability in a city of a developing country. The CV method has been used to estimate the WTP by surveying 500 households of Kolkata. NOAA panel recommendations were followed, as far as possible, to obtain a reliable estimate of WTP.

Valuation Studies Related to Water

Contingent valuation studies have become acceptable more and more with time as a useful way to estimate the benefit of a non-market good. There are many such studies where CV method has been used to value the desirable quality water. Edwards (1998) applied contingent valuation survey to measure WTP to prevent uncertain, future nitrate contamination of groundwater. Deshazo (1999) employed a double-bounded referendum with an open-ended follow-up to estimate WTP for a '24 hours per day' water service with adequate pressure and agreeable quality. Jordon and Elnagheeb (1993) surveyed residents of Georgia to study people's WTP for improvements in drinking water quality. Poe and Bishop (1999) estimated fully informed valuation function for a sample of 271 households in Portage County. The novelty of the study lies in the fact that WTP values have been elicited from individuals who were informed of their actual nitrate exposure level in the source of drinking water.

Many contingent valuation studies have been conducted in developing countries to measure WTP for improvement in water quality. Such studies have proved that CV study, though unfamiliar in developing countries, is applicable to value non-market goods. Kwak and Russel (1994) conducted a direct survey in

Seoul, South Korea, with payment card mechanism. The CV scenario informed respondents about the goal of the government in monitoring and storing water that would reduce the probability of incidents like Nak-dong. The Nak-dong incident was a very significant event that people of Korea are aware of. Whittington *et al* (2002) in a recent study in Kathmandu, Nepal, surveyed approximately 1,500 households. Households were asked how they would vote on a plan to engage a private water company to manage and operate the municipal water supply system. They were asked to choose either the present water system with low prices accompanied with unreliable supply or a private connection featuring all-time supply, accurate water billing and desirable water quality. It was found that residents of Kathmandu were eager to pay more than what they were paying now for an improved supply connection. Griffin *et al* (1995) compared WTP for household connections to a piped water supply system in 1988 with the actual behaviour of the same respondents for households in Kerala, India in 1991. The 1988 WTP study (Singh *et al* 1993) was compared with the actual behaviour recorded in 1991. The 1991 survey found that the behaviour of most households was consistent with the intentions they stated in 1988.

Evidence of WTP studies in India suggests that consumers were willing to pay more for better and more reliable water services. Consumers already connected to municipal water supply system were also willing to pay more than what they are currently paying. WTP study in Baroda by Baidya (1995), Choe *et al* (1996) in Dehradun, Reddy (1999) in Jaipur and Jodhpur, Zerah (2000) in Delhi and World Bank (2001) in Kolkata brought out the fact that households were, in general, willing to pay for improved water supply.

Water Scenario in Kolkata

The present jurisdiction of Kolkata Municipal Corporation (KMC) spreads over 141 wards that cover an area of 187.33 square kilometres. The approximate population of KMC area is 4.5 million. In addition, another 2 million of daytime population commutes to the city for work.

Under Section 234 of the KMC Act, the municipal corporation is responsible for supplying drinking water to its citizens. KMC has installed hand-pumps (both deep and shallow), and supplies piped groundwater in some areas and relies heavily on supply of surface water lifted from the river Hooghly by its two treatment centres situated at Palta and Garden Reach. Citizens of Kolkata either opt for municipal supply or private groundwater sources.

The existing water supply system suffers from major deficiencies such as intermittent supply, inadequate pressure, undesirable water quality due to the presence of pathogenic bacteria and chemical component, high leakage loss, high energy consumption etc., and dependence on groundwater. Unaccounted for Water

(UFW) is another major problem of Kolkata's surface water supply system. Though the per capita treated surface water supply in Kolkata is quite high, the staff efficiency level and the damagingly high level of wastage is a matter of concern. A recent comparison of water supply characteristics in selected cities in the Asia-Pacific region is shown in Table 1 that identifies the points of concern.

Table 1: Comparison of Water Supply Features of the Asia-Pacific Cities

	Range among 33 Asia-Pacific Cities			Kolkata's Rank among	
Water Supply Features	**Kolkata**	**Maximum (1st)**	**Minimum (33rd)**	**7 South Asian Cities**	**33 Asia Pacific Cities**
UFW (%)	36	62	8	4th	17th
Service coverage (%)	64	100	25	4th	22nd
Water availability (hours per day)	10	24	5	2nd	26th
Per capita consumption (litres per day)	213	475	44	2nd	7th
Staff efficiency (employees per 1,000 connections)	16.2	61.0	1.2	4th	26th

Source: Lee (1997)

Sample Selection

The study area of this research was restricted to Kolkata, the capital of West Bengal, India. The geographical area of the city of Kolkata has undergone wide changes in the last three centuries. The last change was made in 1983 when wards of Jadavpur (101 to 114), Behala (115 to 132) and Garden Reach (133 to 141) were added under the jurisdiction of KMC. KMC at present, thus, consists of 141 wards.

In this survey, ten municipal wards of Kolkata were selected for collection of data. Fifty sample households from each ward were taken. Thus, the total sample size amounted to 500 that came from 10 wards of Kolkata. Care was taken to obtain a representative data. The expenditure distribution of the households was so chosen that it closely mimicked the expenditure distribution of the city as a whole. The distribution is known from a previous study of 20,000 households (Chatterjee *et al* 1999). One of the objectives of the study was to use the WTP to formulate a water taxation strategy that incorporated public consent. Households lying below the poverty line were not taken into consideration as it was felt that they needed a separate plan for water provision.

Survey Design

A survey was organised in Kolkata to collect primary data to investigate some hypothesis from the analysis. It was checked: i) whether households in Kolkata were eager to pay for a desirable quality water and what led to variation in WTP, and, ii) whether application of NOAA guideline improved the CV study or not.

The survey was organised in 5 main sections. The survey contained questions on — i) source of water, ii) averting actions and expenditure, iii) water-borne illness and cost of illness, iv) willingness to pay for improved service, and v) respondents' socio-economic characteristics such as family expenditure, educational qualifications, occupation, number of family members, number of children in the household etc.

Quantitative and qualitative data were collected through a questionnaire that was drafted in Bengali to make it more understandable to the respondents. Trained surveyors collected data by direct interview method during the months of May and June in 2003. Information was obtained from the head of the household as far as possible. The sequencing of the questions was made systematically. Movement from one section to another was smooth. Description of the topics was kept in between questions to retain respondent's attention. Questions about the respondents' characteristics were set at the end of the questionnaire.

Sample Characteristics

The descriptive statistics for the survey has been summarised below. The results were obtained from 500 samples taken from 10 wards of Kolkata. As the male head of the household generally made expenditure decisions, the respondents' gender obtained in the study was clearly biased in favour of male population. The WTP question that contained some expenditure decision of the household prompted to choose the male head of the household as respondent in the study. Chatterjee *et al* (1999) household survey in the KMC area found that Kolkata's population consisted of 82.9 per cent Hindus, 14.4 per cent Muslims and the remaining 3.2 per cent of other religions. The empirical findings of this study were obtained from households having more or less similar distribution in terms of religion. The sample characteristics obtained in the study have been summarised in Table 2. Percentages have been shown in parentheses.

The Contingent Valuation Study

The CV survey was meant to obtain the maximum amount of money the respondents would actually pay monthly for water of World Health Organisation (WHO)-specified quality they needed. The questionnaire described the structure of the hypothetical market before asking the WTP question. They were told to

assume a situation when a private operator started supplying water of WHO-specified quality in their locality. The private operator offered the initial connection free of cost but charged a monthly amount on water use. The respondents were asked a dichotomous choice question where respondents were asked to state whether they agreed or disagreed to pay a specific amount. The amount was varied across respondents and their answers were elicited. The bids used for different sub-samples were Rs. 40, Rs. 60, Rs. 80, Rs. 100, Rs. 120 and Rs. 140 per month. The dichotomous choice question was followed by an open-ended question.

The dichotomous choice question after describing the scenario asked the respondents about their willingness to pay Rs. 40 / Rs. 60 / Rs. 80 / Rs. 100 / Rs. 120 / Rs. 140 (only one for each respondent) each month for the amount of water the household required for the specified service. The follow-up open-ended question asked the maximum amount they would be willing to pay if the private operator started operating in their locality.

Table 2: Sample Characteristics

Criteria		Frequency
Sex of the respondent	Male	358 (71.6)
	Female	142 (28.4)
Religion of the respondent	Hindu	447 (89.4)
	Others	53 (10.6)
Presence of kids below five years of age in the household	None	393 (78.6)
	Some	107 (21.2)
Number of members in the household	Up to 4	300 (60.0)
	Above 4	200 (40.0)
Educational qualification of the respondents	Below graduate	308 (61.6)
	Graduate and above	192 (38.4)
Occupation status of the respondents	Employed	269 (53.8)
	Not employed (including homemakers and retired)	231 (46.2)
Monthly expenditure of the household	Up to Rs.3,000	208 (41.6)
	Above Rs.3,000	292 (58.4)

Note: Figures in parantheses indicate percentages.

NOAA Guideline for CV Studies: Compliance

NOAA(1993) report on contingent valuation made an assessment of the CV method as a tool for valuing non-market goods. The panel recognised the promise of CV and recommended some proposals to make it more effective. The following section summarises the extent to which the study met the 1993 guidelines recommended by NOAA.

The NOAA panel recommended the use of probability sampling in a CV survey. The panel favoured personal interview in comparison to mailed or telephonic survey. In this survey, for collection of data, the total 141 wards of KMC were partitioned into five more or less equal parts. Wards receiving surface water completely and receiving partially were separated in each part. One ward receiving surface water completely and one ward where surface water reached partially were selected randomly from each part. In this way we selected ten wards among which five received surface water completely and five that received surface water partially. Fifty sample households from each ward were taken. Thus, the total sample size amounted to 500 that came from 10 wards of Kolkata. Among these 500 samples, 250 households came from areas where municipal surface water reached partially and the other 250 came from areas where it reached completely. Such classification was made with the purpose of obtaining WTP from samples that did not have an in-house surface water connection. It was expected that people having an in-house surface water connection would be less eager to pay for an alternative surface water supply. It is to be mentioned that there was no ward in Kolkata where municipal surface water supply was yet to reach. Purposive sampling was followed with the purpose of obtaining samples in accordance with the size distribution of households by monthly household expenditure class as obtained in a Kolkata Metropolitan Development Authority survey (Chatterjee *et al* 1999). The present study has followed purposive sampling with the purpose of obtaining a representative data that could be used to formulate a water taxation strategy that incorporated users' consent. The method of interview was direct. The head of the household, as far as possible, was interviewed personally.

Pretest is a trial and error process with draft versions of questionnaire to identify the best design. The objective is to identify problems with the design of the survey and specially the suitable bids for the dichotomous choice CV survey. This study, after proper pretest, used six values for the valuation question. The bids used were Rs. 40, Rs. 60, Rs. 80, Rs. 100, Rs. 120 and Rs. 140 per month. Pretesting of newspaper clippings was also carefully done. The NOAA panel urged use of pretest to control a high non-response rate, lack of understanding by the respondent etc. The response rate for the survey came out to be 88 per cent. There was some item nonresponses specially for the maximum WTP and the monthly family expenditure question. Follow up methods and telephonic interview were undertaken to obtain the answer. This resulted in the reduction of item nonresponse for the family expenditure question to zero. Though 100 per cent response was obtained for the dichotomous choice WTP question, item nonresponse for the maximum WTP question could not be reduced below five after several follow-ups. The maximum WTP for those five respondents were taken as zero. The average time taken to interview a particular respondent was found to be approximately 16 minutes. A high understanding of the questionnaire was reflected in the high response rate

and very low item nonresponse. 95.8 per cent of the respondents themselves acknowledged that the survey method was more or less understandable to them.

There are CV studies where the scenario presented is subjective (Sun *et al* 1992). Kwak and Russel (1994) conducted a CV study where people were asked to state their WTP to reduce the probability of recurrence of an incident of water pollution that had already occurred. Poe and Bishop(1999) informed the respondents about the actual nitrate exposure level in the source of drinking water and WTP values were elicited from them. A study by Jordan and Elnagheeb (1993) informed the respondents about a hypothetical programme to estimate WTP. A scenario confronted the respondents with some concrete changes in an amenity. This required clear specification of reference and target levels. The questionnaire was carefully designed to make people realise that they were being asked to value water of WHO quality. The reference level was the state of water supply with unreliable water quality and the target level was a private water supply system supplying water of a standard specified by WHO. As WTP was a conservative estimate, the panel preferred it in comparison to willingness to accept (WTA). The present study has made use of a WTP question after describing the scenario.

The NOAA panel has suggested posing valuation question as a vote. Dichotomous choice technique involved asking a closed-ended question. Hanneman (1984, 1985) argued that a dichotomous choice question yielded a more meaningful response than open-ended format. The advantage of a dichotomous choice format was that it paralleled purchase decisions of market goods. The WTP question in the study involved six bids. Separate valuation amount was used for more or less equal sub-samples. The dichotomous choice question was followed by an open-ended question. Respondents were reminded of the answer they gave in case of dichotomous choice question and then asked to state the highest amount they were eager to pay.

Considerable effort, as recommended by the NOAA panel, was taken to induce respondents to take the valuation question scenario seriously. The questionnaire described the structure of the hypothetical market before asking the WTP question. The respondents were informed of the impurities contained in the water they drink. They were also informed of the diseases that these impurities might cause. They were shown newspaper reports regarding impurities found in drinking water in Kolkata to make them aware of the real situation. They were shown a risk-ladder diagram in which they were informed about the reduction in risk that might happen due to the use of desirable quality water. Respondents were told that the government was planning to engage private operators in water supply sector in West Bengal and also considering imposition of water tax on supply of water in Kolkata. The cost of the programme was referred to by explaining the current purification system used by municipal authorities and associated cost of

purification. The opportunities of using substitute commodities were informed to the respondents directly prior to the main valuation question. A consumer could use the water supplied by the said private operator or the water supplied by municipal authorities or water from a private water source.

The NOAA panel noted that CV studies generally not reminded the respondents forcefully of the budget constraint. The study reminded respondents that they would lose the opportunity of alternative expenditure possibilities due to the payment. If they actually paid the amount then they would certainly face some added economic constraints. The panel suggested that a 'no answer' option should be explicitly allowed in addition to 'yes' or 'no' option on the valuation question. This was not convincingly introduced in the survey as the option was not prompted by the surveyors. It was found that five respondents could not answer the open-ended follow-up question regarding maximum WTP.

The panel noted that it was desirable to ask to specify reasons for respondent's reported choice on the valuation question. Such questions were not asked in the survey. There were adequate follow-up questions to separate true zeros and protest zeros. It is common practice in contingent valuation studies to examine data for zero responses. It was found that 71 respondents chose to pay Rs. 0 in response to the open-ended valuation question (including five-item non-responses on maximum WTP question). They also responded 'no' in reply to the dichotomous choice question. Respondents who chose to pay Rs. 0 were asked the reasons for making such a choice. 43 of them replied that they could not afford any payment for water.

Zero responses consisted of some protest responses. A protest response was a zero WTP reported by a respondent even though the good had some value for her. The study found 17 protests. Protestors mainly objected to any payment for basic services like water. Some respondents objected to privatisation of water services, some protested on the ground that the authorities collected enough taxes by other means to meet the expenditure needed for water sector, others protested as they believed that the incompetent and corrupt authorities would not supply safe water even if they collected extra taxes from the citizens. The remaining respondents either could not specify the exact reasons of giving a zero response or gave some interesting reasons behind a zero response.

CV has been objected on the ground that it produced a result that was inconsistent with assumptions of rational choice. The panel urged to build mechanism to check whether there was any inconsistency or not. The dichotomous choice valuation question was followed by an open-ended question to check whether the response to dichotomous choice question contradicted rational behaviour. Table 3 has summarised how well the present study followed best practices as recommended by NOAA in designing CV studies.

Table 3: NOAA Guidelines and the Procedure Followed in the Survey

Current Problem/s with CV	NOAA Recommendations as to How to Address Them	How this Study Adopted NOAA Recommendations	What Problems Could Have Persisted, Had NOAA Not Adopted in This Study
Inappropriate questionnaire	Pretest	Importance on pretest	Inappropriate bids, payment vehicle
Telephonic or mailed interview	Direct interview	In-person interview	Low level of understanding, high non-response rate
Subjective or historical scenario	A future, hypothetical scenario	WTP for a line supplying water of WHO standard by a private operator was asked	Unreliable WTP estimate
Open-ended format	Referendum format	A dichotomous choice question followed by an open-ended follow-up used	Strategic response, Does not parallel market decisions
Non-specification of reference and target level	Scenario describes the benefit of the programme	A risk ladder diagram depicting the benefit due to use of WHO quality water	Scenario is not sufficiently understandable, plausible and meaningful to respondents
Income constraint not mentioned forcefully	Survey reminds the respondents that payment for the new service will reduce other consumption	Respondents were made aware of the income constraint they faced for using the service	Budget constraint bias
Non-specification of substitutes available to the respondent	Reminding respondents that substitute exists for the hypothetical benefit	Specific reminder of the available substitutes was given	Unreal, noncredible market scenario

CV Results

Different bids were offered to more or less equal sub-samples. 190 (38 per cent) respondents replied affirmatively to the bids offered to them. As expected, 'yes' responses to lower bids were higher than 'yes' responses to higher bids, whereas 58.3 per cent of the respondents responded positively to an offered bid of Rs. 40 per month, only 20.5 per cent accepted a bid of Rs. 140 per month.

Table 4: Group-wise WTP Estimates

Criteria		Dichotomous Choice Valuation in Rs.	Open-ended Follow-up Valuation in Rs.
Source and position of water	In-house surface water	33.71	43.41
	Others	73.97	52.35
Sex of the respondent	Male	61.26	51.57
	Female	55.70	43.23
Religion of the respondent	Hindu	60.04	49.93
	Others	56.64	43.60
Presence of kids below five years of age in the household	None	53.83	48.15
	Some	81.16	53.30
Number of members in the household	Up to 4	58.23	48.87
	Above 4	61.86	49.89
Educational qualification of the respondents	Below graduate	24.62	35.37
	Graduate and above	115.92	70.53
Occupation status of the respondent	Employed	65.37	52.35
	Not employed (including homemakers and retired)	53.05	45.69
Monthly expenditure of the household	Up to Rs.3,000	24.23	25.58
	Above Rs. 3,000	84.93	65.87

The mean WTP in the study was found to be Rs. 59.68 per household per month in case of the dichotomous choice valuation question. In contrast, the average WTP for the open ended valuation question, after excluding protest bids, came out to be Rs. 49.28 per household per month. Respondents expressed their WTP for the amount of water their household needed monthly. Respondents stated that they,

on an average, needed 93.5 litres of water per day per head. As the average family size in Kolkata was five, the monthly household demand for water, on an average, amounted to 14 kilolitres.

As expected, people already connected to the surface water supply system were less eager to pay than others. Respondents having higher level of income, more educational qualification and having kids in the household were more eager to pay for quality water. The actual group-wise WTP estimates have been summarised in Table 4.

The result obtained is in conformity to the result found in World Bank (2001) study. The World Bank study found mean WTP per family per month for water to be Rs. 68 for multi-storeyed houses, Rs. 44 for other houses and Rs. 21 for slums. The average for all households was estimated at Rs. 43 per household per month.

Summary and Policy Implications

Application of NOAA guideline in a CV survey is useful in finding a minimum error, authenticate, reliable, valid and free from bias result. The present study followed the recommendations as far as possible. It was found that application of NOAA recommendation led to better understanding of the questionnaire by the respondents, a high response rate and a conservative and valid estimate of WTP. The pretest was found important in determining the bids of dichotomous choice and the payment vehicle of the study.

Respondents in this study revealed their preferences for desirable quality water by expressing eagerness to pay. The monthly WTP was estimated as Rs. 59.68 and Rs. 49.28 for the dichotomous choice and open-ended WTP question respectively.[1] The calculated WTP estimate could be used to formulate a water taxation strategy. It was generally argued that people in cities like Kolkata were not eager to pay for desirable quality water. The study disapproveed the widely thought notion. CV studies could be usefully adopted to estimate the WTP in cities in developing countries. It is expected that they would also be eager to pay for water. But such studies should adhere to NOAA norms.

Though NOAA (1993) panel recommended a direct survey and this was followed in the study, it was felt that the respondents should be allowed to take time and get the scope to consult with family members before replying to a WTP question. A CV survey in which the questionnaire is sent to the respondent at an early date and a follow-up direct survey made later can be a viable alternative.

Note

1. Though every methodological precaution was taken, the estimate obtained in this study is a bit lower than WTP estimates obtained in some cities in India. However, the estimate of WTP found in this study is comparable with estimates obtained in World Bank (2001) study of Kolkata.

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Economics of *Gajni* Farming under Different Farming Systems in Coastal Floodplains of Karnataka, India

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Abstract

Indian coastline is vulnerable to sea-level rise and the tidal ingress, and pushing up of saline water on to inland results in submergence of crop lands. As a result, these lands, particularly the low-lying agricultural lands, become unfit for crop production. Such lands are found all along the Indian coastline, including the Karnataka coast, where they are locally referred to as *gajni* lands. This study was carried out to identify the different farming systems practised in the *gajni* lands, analyse the economics and compare the allocative and economic efficiencies of these systems. The objective was achieved through a random sample of 160 *gajni* farmers who were personally interviewed using a comprehensive questionnaire. The production function analysis revealed that all the resources included in the production process had a positive impact on gross returns in case of paddy mono-culture. However, the farming systems were not allocatively efficient in input utilisation and farmers are not aware of efficient use of inputs. Farmers were most economically efficient in the two modern faming systems as the net returns were the highest. Both paddy mono-culture and mixed farming exhibited increasing returns to scale while the paddy/prawn rotation system and semi-intensive prawn farming were characterised by diminishing returns to scale.

Introduction

Indian coastline is vulnerable to sea-level rise and tidal ingress, and pushing up of saline water on to inland results in submergence of croplands. As a result, these lands, particularly the low-lying agricultural lands become unfit for crop production (Aggarwal and Lal 2000). Such lands or flood plains are found

extensively along the estuarine borders and river banks on the Indian coastline, including the Karnataka coast where these lands are referred to as *gajnis*. Traditionally, the local communities managed these lands by following the traditional farming systems, i.e., paddy mono-culture or the paddy / prawn rotation system. Although the returns from these traditional systems were low compared to those from modern aquaculture industry, they were quite sufficient for local sustenance and thus, could be characterised as subsistence economic activity (Maybin and Blundell 1996; Bhatta and Bhat 1998).

However, the situation changed after the seventies when, under the banner of promoting 'blue revolution', development of modern aquaculture almost replaced the traditional methods. In addition, the then state government took a policy decision to replace the longstanding mud embankments surrounding the *gajnis* with permanent stone dams. This created favourable conditions for the entry of fishing contractors and external capital in the region (Bhatta and Bhat 1998). The lucrative economic (monetary) returns from the aquaculture industry and the fact that it is risk-free in terms of the returns attracted many *gajni* farmers who preferred leasing out their lands to the contractors for prawn farming to cultivating them on their own. This was mainly because in the beginning of every production season, irrespective of whether or not the contractors got their crops, the farmers were assured of the returns in the form of the advance lease rent (Bhatta and Bhat 1998; EJF 2003). Further, the rising foreign and domestic demands for prawns resulted in rapid expansion of the industry along the Karnataka coast (Naik 1994). These developments resulted in conversion of large tracts of *gajnis* into profit-making aquaculture ponds. However, the success of the industry was short-lived as it did not measure up to its promise since the financial benefits often failed to trickle down to the poorest and vulnerable coastal communities (Grootaert 1998). The initial euphoria saw its end as recurring disease incidence resulted in abandonment of many aquaculture ponds. Serious concerns were raised about the long-term sustainability of the *gajnis* since the lands once managed traditionally and sustainably either became low-productive or unproductive, leaving the farmers in jeopardy. As a result, farmers are now seriously thinking about ways to sustainably manage the *gajni* lands.

In line with this, a study was carried out to identify different farming systems practised by *gajni* farmers, analyse the economics and compare the technical, allocative and economic efficiencies of these different systems. The specific objective of the study was to work out the economics of *gajni* farming under different farming systems in the study region. The hypothesis was that traditional farming systems were more profitable compared to the modern farming systems. The present paper pertains to Uttara Kannada, a coastal district in Karnataka.

Methodology

The Study Area: The study area, Uttara Kannada district (previously North Kanara), lies between 74°9' to 75°10' East longitude and 13°55' to 15°31' North latitude and stretches itself along the coastline of the Arabian Sea. The district has a total of 5,640 hectares of *gajni* lands spread over five coastal talukas, namely, Karwar, Ankola, Kumta, Honnavar and Bhatkal (BFDA 1998). The region comes under the direct influence of the Southwest monsoon, receiving very heavy rains from June to August. Agriculture is the main occupation in the district and more than 70 per cent of the workforce is engaged in agriculture. However, fisheries are an important economic activity and fish represents the major dietary source of animal protein for the people in the region.

Sampling Design and Data Collection: Multistage random sampling technique was used to select the study sites and the respondents. In the first stage, three talukas, namely, Kumta, Karwar and Ankola, were selected as they together accounted for around 88 per cent of the total *gajni* lands available in the district (Table 1). In the next stage, based on the proportion of the *gajni* lands available in each respective talukas, the villages and the farmers were selected. Accordingly, from the three talukas identified, a total of 10 villages and 160 farmers practising different farming systems were selected for the study. Both primary and secondary data were used for the study. Primary data were obtained by personal interview method using a comprehensive questionnaire.

Table 1: Distribution of G*ajni* Lands and Different Farming Systems Across the Study Talukas

Name of Taluka	*Gajni* Lands (ha)	Alternative Land-Use Options for Farmers
Ankola	924	
Karwar	1,116	
Kumta	2,933	Paddy mono-culture Paddy / Prawn
Sub-Total	4,973 (88.2)	Rotation System Prawn Farming
Bhatkal	319	(Traditional and Semi-Intensive)
Honnavar	348	Mixed Farming
Sub-total	667 (11.8)	
Total	5,640	

Note: Figures in parentheses indicate percentages of total *gajni* lands available in the district.

Data Analysis: Budgeting framework was used to estimate and compare the costs and returns structure of different farming systems. Net returns per hectare were used as measures of economic efficiencies (Onyenweaku *et al* 2000). Production

function analysis was used to determine the factors which influenced the returns in each farming system. Processing of the data collected ascertained that factors like land, labour (human and bullock), manure, seeds and feed (in case of prawn farming and mixed farming) were important variables influencing the production activity. The independent variables included were land, labour (human and bullock), manure, Post-larvae (PLs), fish fingerlings and feed. Gross income per hectare from each system was the dependent variable. A Cobb-Douglas type of production function (linear form) was specified implicitly as in equation 1 for each farming system:

$$Y = aX_1^{b1}.X_2^{b2}.X_3^{b3}.X_4^{b4}.X_5^{b5}.X_6^{b6}.X_7^{b7}.X_8^{b8}.X_9^{b9}.E_i \qquad (1)$$

where,

Y is the gross returns (Rs);
X_1 is the amount of land (ha);
X_2 is the value of human labour (Rs);
X_3 is the value of bullock labour (Rs);
X_4 is the value of paddy seeds (Rs);
X_5 is the value of farm yard manure (Rs);
X_6 is the value of artificial feed for prawn/fish (Rs);
X_7 is the value of post-larvae (Rs);
X_8 is the value of fish fingerlings (Rs);
X_9 is the value of pre-stocking chemicals (Rs);
a is the intercept / constant;
b_1 - b_9 represent elasticities of production;
E_i is the error term

Cobb-Douglas type function is the most popular of all possible algebraic forms in the farm firm analysis. This is because it provides a compromise between adequate fit, computational feasibility and sufficient degrees of freedom to allow for statistical testing. Thus, Cobb-Douglas function was used as it provided good fit to the data and it is linear in its logarithmic transformation and thus is empirically simple, gives elasticities, permits the calculation of returns to scale (Khaldi 1975; Chennareddy 1967; Hopper 1965; Islam *et al* 2003).

Further, to judge the allocative efficiency (the ability of a firm to equate the marginal value product of a factor to its price) of each farming system, the ratios of the Marginal Value Product (MVP) to Marginal Factor Cost (MFC) of individual resources were used (Hopper 1965; Koopmans 1951; Kumbhakar and Bhattacharyya 1992; Onyenweaku *et al* 2000; Liefert *et al* 2003). The computed MVP was compared with the MFC or opportunity cost of the resource to draw inferences. A resource is said to be optimally allocated when its *MVP=MFC*. The marginal value products (MVPs) were calculated at the geometric mean levels of the variables using the formula:

$$\text{MVP of } X_i^{\text{th}} \text{ resource} = b_i . \tag{2}$$

where,

= geometric mean of gross returns in different farming systems

= geometric mean of ith independent variable

b_i = regression coefficient (elasticity of production) i^{th} independent variable

The average per hectare value of land was taken as its marginal cost in imputing the marginal cost of land. The marginal cost of all other inputs was considered as one rupee, since these inputs had been measured in value terms in the regression analysis.

Results and Discussions

Different Farming Systems Identified in the Study Region: During the survey it was identified that the farmers in the region practised four different farming systems, i.e., paddy mono-culture, paddy / prawn rotation, prawn farming (traditional and semi-intensive), and mixed farming (Bhatta and Bhat 1998). A brief description of these systems has been given below:

*Paddy Mono-culture***:** is a conventional system of cultivating paddy in the *gajnis*. A salt-tolerant paddy variety, *kagga*, is grown during *kharif* with the onset of the monsoon and harvested in November once the rains subside. The rice is mainly used for self-consumption.

*Paddy / Prawn Rotation***:** is the other traditional system followed in the region. Here, paddy is grown in one season followed by prawn culture in the next. The natural tides bring along with them the wild fish fingerlings and post-larvae (PLs), thus enabling farmers to produce prawns in the paddy fields through a rotation system. The final product includes paddy, prawn and also other marine species.

*Prawn Farming***:** in the region is practised by following both extensive and semi-intensive methods. Extensive method is usually practised in low-lying areas and involves tidal flooding, stocking at the rate of 10,000 – 30,000 post-larvae per hectare, and the final product includes prawn and other marine species. Semi-intensive method, on the other hand, is comparatively capital-intensive as it involves purpose-built ponds of between half and five hectares, stocking at rates between 30,000 and 100,000 post-larvae per hectare. It also includes pumping of water in and out from ponds, regular feeding and post-stocking preparations. The final product includes only a single output-prawn.

*Mixed Farming***:** is an integrated system developed by the agricultural research station at Ankola. It is an improvement over the semi-intensive prawn farming which involves prawn and fish farming in the same pond with stocking of post-larvae at rates between 10,000 and 30,000 per hectare and fish fingerlings at rates

between 4,000 and 5,000 per hectare. It also involves pumping of water, regular feeding and post-stocking preparations similar to semi-intensive prawn farming. The final product includes prawn and fish.

Table 2: Distribution of Sample Farmers Based on the Faming System Practised

Name of the Taluka	Farming Systems				Total
	Rice Mono-culture	Rice/Shrimp Rotation Farming	Prawn Farming	Mixed Farming	
Ankola	12	11	5 (1)	2	30
Karwar	14	13	7 (4)	2	36
Kumta	40	28	21 (9)	5	94
Total	66	52	33 (14)	9	160
% of Sample Farmers	41.25	32.50	20.63 (8.75)	5.62	100

Note: Figures in parentheses indicate number and percentage of sample farmers practising semi-intensive prawn farming

      Distribu1tion of sample farmers based on the systems they practised has been presented in Table 2. The figures clearly indicate that paddy mono-culture and paddy/prawn rotation system were the most commonly practised systems in the region as 41 and about 33 per cent of the farmers respectively took up these systems. Prawn farming as explained above was being practised by following both the traditional and semi-intensive methods. Irrespective of the methods, around 21 per cent of the sample farmers practised prawn farming. However, only nine per cent of the farmers took up semi-intensive prawn farming as this method was capital-intensive and only a few resource-rich farmers or the fishing contractors who leased in the lands from farmers practised this system (Bhatta and Bhat 1998; EJF 2003). After the initial euphoria of the aquaculture industry, there was a huge reduction in the number of farmers practising commercial prawn farming in the region because a serious outbreak of viral disease caused many farmers to abandon the aquaculture ponds (Maybin and Blundell 1996; Shivanandamurthy 1997). The other system identified was mixed farming which was a new system of integrating prawn farming with fish culture and an improvement over semi-intensive prawn farming. However, given the problems associated with commercial prawn farming, the farmers hesitated to take up this system and so did not receive the expected response (Keshavanath 1999). Only 5 per cent of the sample farmers who took up this system were identified.

      Having identified the different farming systems practised by the *gajni* farmers, an attempt was made to analyse the economics and compare the allocative and economic efficiencies of these systems.

Economic Efficiencies of the Farming Systems: The costs and returns for the four farming systems have been presented in Table 3. Net returns per hectare (= Gross returns–Total cost) were used as measures of economic efficiencies of the four farming systems identified in the region. The total costs included total variable costs plus total fixed costs. Variable costs included the cost of seeds, feed (in case of prawn farming and mixed farming), manure, labour (human and bullock), and interest on working capital. The fixed costs included land revenue, rent, interest on fixed capital, cost incurred on bunding and installation of sluice gates (in case of prawn farming and mixed farming).

Table 3: Costs and Returns of Different Farming Systems Per Hectare in the Study Region

Items	Paddy Mono-culture	Paddy / Prawn Rotation	Prawn Farming		Mixed Farming
			Traditional	Semi-Intensive	
Cost (Rs/ha)					
Total Variable Costs	14,723.45	18,898.95	29,694.28	49,082.03	47,899.38
Total Fixed Costs	3,689.03	12,888.48	15,096.63	224,174.58	264,270.00
Total Cost	18,412.48	31,787.43	44,790.91	273,256.61	312,169.38
Returns (Rs/ha)					
Gross Returns	24,259.35	83,765.00	85,450.00	523,200.00	551,857.50
Net Returns	5,846.87	51,977.57	40,659.09	249,943.39	239,688.12

Note: The costs and returns are not discounted

The estimated total costs were the highest in case of mixed farming (Rs. 312,169.38 / ha) followed by semi-intensive prawn farming (Rs. 273,256.61/ha). This was because the establishment costs in case of these systems were relatively higher than the other systems identified. The gross returns per hectare were also higher in case of mixed farming and semi-intensive prawn farming. However, with respect to the net returns per hectare for these farming systems, it is evident that net returns in case of traditional paddy / prawn rotation system (Rs. 51,977.57 / ha) was higher than in case of traditional prawn farming (Rs. 40,659.09/ha). In addition, unlike the paddy mono-culture system or prawn farming, which included a single enterprise, the rotation system included two enterprises, *viz.*, paddy and prawn, and, therefore, had an advantage of the risks being distributed among enterprises (Purandarashetty 1986). Although, the net returns from mixed farming and semi-intensive prawn farming were higher, the heavy initial investments involved in adopting these systems could not be ignored. Moreover, the ill-effect of these systems on the soil quality, land and the environment is a cause of concern. Therefore, in such situations, adopting the traditional systems would be a wise decision.

Farmers practising paddy mono-culture could easily shift to the rotation system by incurring some costs towards strengthening the embankments and installation of sluice gates as against the huge investments demanded by semi-intensive prawn farming or the mixed farming, which would substantially increase their farm income (Naik *et al* 1998; Keshavanath 1999).

Factors Influencing Production Activity in *Gajni* Lands: Cobb-Douglas production function was fitted to the data related to each farming system in order to determine the factors influencing production activity. Estimated values of the elasticity coefficients and related statistics for the selected sample farmers practising different farming systems have been presented in Table 4.

Table 4: Regression Results for Total Farms in Different Farming Systems
(N=160)

Explanatory Variables	Paddy Mono-culture	Paddy / Prawn Rotation	Prawn Farming	Mixed (Prawn+ Fish) Farming
Intercept	4.432 (1.023)	11.208 (1.252)	9.061 (3.408)	13.935 (0.701)
Land area (ha)	0.214 (0.158)	0.233 (0.109)	0.612* (0.212)	-0.065* (0.020)
Human Labour (Rs)	0.114 (0.163)	-0.161 (0.144)	0.162 (0.174)	0.540*** (0.050)
Bullock Labour (Rs)	0.106 (0.162)	0.443* (0.121)	-	-
Paddy Seeds (Rs)	0.406*** (0.183)	-0.4967*** (0.255)	-	-
FYM (Rs)	0.424** (0.190)	0.278 (0.244)	-	-
Artificial Feed (Rs)	-	0.009 (0.010)	0.023 (0.153)	-0.721** (0.310)
Post-Larvae (Rs)	-	-	0.479* (0.153)	0.040 (0.025)
Fish Frys (Rs)	-	-	-	0.865* (0.312)
Disinfectants (Rs)	-	-	-0.371** (0.159)	0.510** (0.020)
R2	0.776	0.903	0.852	0.976

Note: $*P < 0.01$, $**P < 0.05$ and $***P < 0.10$; and Figures in parentheses indicate standard error

The coefficient of multiple determination (R^2) for different farming systems varied from 0.776 to 0.976, which indicates that 78 to 98 per cent of the total variation

of output of respective farming system has been explained by independent variables included in the model. However, with respect to prawn farming, the production function analysis was carried on only for the semi-intensive prawn farming since the independent variables included in case of traditional prawn farming (land, labour and feed) explained only 38 per cent of total variation of output. The relative contribution of specified factors affecting productivity of the farming systems in *gajni* agriculture was evident from the estimates of regression equation for different farming systems identified in the region.

In case of paddy mono-culture, the coefficients for seeds and manure were positive and statistically significant implying a positive effect on gross returns. In case of the rotation system, the elasticity coefficients for bullock labour and seeds (paddy) were positive and significant. Similarly, in case of semi-intensive prawn farming, the coefficients for land, post-larvae (PLs) and disinfectants had a significant positive effect on the gross returns while, in case of mixed farming, coefficients for land area, human labour, artificial feed, fish frys and disinfectants were statistically significant.

One thing is clear from this analysis: that the *gajni* farmers were traditionally crop farmers and lacked the special physical skills and fishing knowledge (Bhatta and Bhat, 1998). Hence, there was scope to increase the income through imparting fishing knowledge and training to the *gajni* farmers in areas such as stocking of PLs, managing water flow in and out of the creeks and decision-making regarding the harvest dates and time.

Allocative Efficiency in *Gajni* Agriculture: In peasant agriculture, efficient use of farm resources is of utmost importance and is of considerable interest to agricultural economists (Chennareddy 1967). In order to test the allocative efficiency, the ratio of marginal value product (MVP) to the marginal factor cost (MFC) for each input was computed and tested for its equality to one. The ratios of MVP and MFC for individual resources have been presented in Table 5.

In case of paddy mono-culture, the value for human labour was less than unity (0.3310), but greater than unity for other resources. The results show that human labour was excessively utilised and, therefore, should be reduced to increase profit, while the other resources should be increased to enhance the returns. The values for human labour, paddy seeds and feed in case of paddy/prawn rotation were less than unity indicating excessive usage of the resources. The negative ratios indicated uneconomic use of seed and human labour in the production process. For prawn farming, except disinfectants (-14.3412) and artificial feed (0.221), all other resources were underutilised and there was scope to increase the use of each of these resources. Similarly, in case of mixed farming, except for land (-0.8513) and feed (-7.6816), the values for all other resources was greater than unity indicating underutilisation of the resources. These results imply that the four farming systems

identified in *gajnis* were not allocatively efficient in input utilisation and farmers were not aware of efficient use of inputs.

Table 5: Ratios of MVP and MFC for Individual Resources in Different Farming Systems (N=160)

Resources	Paddy Mono-culture	Paddy/Prawn Rotation	Prawn Farming	Mixed (Prawn+ Fish) Farming
Land	115.911	361.109	6.242	-0.8513
Human Labour	0.331	-2.111	2.812	63.221
Bullock Labour	1.090	18.461	-	-
Paddy Seeds	9.283	-71.632	-	-
FYM	2.910	9.282	-	-
Artificial Feed	-	0.981	0.221	-7.681
Post-Larvae	-	-	11.521	1.191
Fish Fingerlings	-	-	-	27.181
Disinfectants	-	-	-14.341	28.121

Note: * MVP is Marginal Value Product and MFC is Marginal Factor Cost

Summary and Conclusions

A comparison of the costs and returns structure of the different farming systems revealed that the two modern faming systems, i.e., semi-intensive prawn farming and mixed farming, had the highest net returns. However, the benefit-cost ratio which explains the returns per rupee invested indicated that paddy / prawn rotation system was the most profitable enterprise. Further, production function analysis carried out to study the influence of various factors on gross returns across different farming systems revealed that all the resources included in the production process had a positive impact on gross returns in case of paddy mono-culture. Human labour and seeds were the factors having a negative impact on gross returns in paddy / prawn rotation, while in case of prawn farming (semi-intensive method) PLs and disinfectants had a negative influence on the gross returns. With respect to mixed farming, land and feed had negative influence on gross returns. The results further indicate that the farming systems were not allocatively efficient in input utilisation and farmers were not aware of the efficient use of inputs.

It is clear that for long-term sustainability of *gajnis,* farmers need to adopt the traditional ways of cultivation which were once considered as subsistence economic activities. Moreover, the huge financial benefits from the modern systems cannot negate the social and ecological damages caused by commercial prawn farming (NEERI 1995; Bhatta and Bhat 1998; EJF 2003; Islam *et al* 2003; Maybin and Blundell 1996). Having said this, long-term sustainability of *gajnis* cannot be attained by increasing the use of resources or substitution of resources. This can be achieved

by introducing modern technology into the traditional system in a package (Chennareddy 1967; Hopper 1965) and the package should include introduction of new resources, agricultural education, special skills and techniques and appropriate guidance in farm planning.

Notes

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Rural Poor: Who Are They and Why? A Case Study of Madhya Pradesh

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Abstract

An attempt has been made in this paper to examine, identify and characterise the poor not only on the basis of their economic parameters but also by their social background. In this direction, specific economic features of the households have been identified first, which determine their standard of living. In addition, the social background of these families has been examined to understand if these have any poverty extenuating consequences over and above their economic handicap and well-being. A logistic regression exercise has been undertaken to point out specifically the effects of the economic and social variables of the households, on their income, separately as well as the combined effect of various combinations of these two types of household variables. In this exercise it is ascertained that the likelihood / odds of a household coming under poverty is greater either with a specific economic of social characteristic of the household or a combination of these two. In addition, a simple regression exercise has estimated the increments or deductions in monthly per-capita consumption expenditures of individuals for given changes in their economic, social and regional characteristics.

Introduction

Most of the studies on poverty have emphasised the estimation of poverty and not many have attempted to get at understanding the issue at its roots. By any method of poverty computations it comes out very clearly that poverty is located mainly among the agricultural workers (agricultural labourers), and specifically among these of the deprived castes. Size of asset holding, land as the major livelihood, education and type of employment are identified as the major determinants of poverty of any household. The logic of state intervention in poverty alleviation thus stems out of the need to direct the developmental initiatives towards these aspects for the most deserving groups and regions. Indeed, the process of intervention emerges more because of the probable bypassed groups and regions in the process of development from the perspective of the failure of market and comparative advantages of the other groups. It is at this juncture that the bypassed

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regions or social groups have to be identified as objective functions, while dealing with and framing the development policies. It has been the endeavour of the Indian state to assimilate these groups and regions in the mainstream process of development, though with marginal success. The interventions, therefore, have to be treated more as consequences in the context of differential development experiences rather than the deliberate design of development.

Interestingly, between 1983-84 and 1993-94, the decline in poverty among Scheduled Caste households was about 7 per cent in the rural areas, but it increased by 13 per cent in the urban areas (Deshpande and Jyotishi 2004). The poverty trend in the non-Scheduled Caste households, however, showed a decline in the rural as well as urban areas consistently. The state policy towards Scheduled Castes and Scheduled Tribes is quite transparent and has a clear emphasis on positive discrimination. But that has only been beneficial to a myopic proportion. Those depending on agricultural labour as mainstay remained at the same relative position of poverty. It signifies a clear failure of designing the policy towards weaker sections. Even though the majority belonging to poor strata came from agricultural labour group no clear policy programmes were designed specifically focusing on them. It is also equally true that as a stake-holder interest group, the agricultural labourers belonging to Scheduled Castes could never plead their case due to lack of organisation. The policy towards agricultural labour is in the purview of the policy by the provincial governments but nothing substantial has been done except promulgating the Minimum Wages Act, which is more on the paper than in practice. As argued by Rao (2002), it is essential to look at poverty as a wider concept incorporating food and non-food basic requirements, participation as also stake of the poor in the process of programme implementation, their empowerment and their right to decide the self-reliant strategy for the family. Often, the food and non-food requirements are met out of the compulsions imposed due to scarcity and non-availability of the preferred food basket, and as regards to empowerment and choice of strategy, poor as a group always remained at the receiving end.

This paper has been organised in five sections. This section has provided a brief outline and background of the study and set the stage to look into the state of Madhya Pradesh and its performance with respect to certain welfare indicators. This is followed by the calculation of the poverty rates for the state of Madhya Pradesh at the state level. Later, we have made a close examination of the incidence of poverty across economic categories, namely, household type of the poor individual, the land area owned and level of education. We have also included the analysis of the social background of the individuals, namely, their caste. Finally, two econometrics exercises have been included, one a logistic regression to ascertain the odds of an individual/household being poor given its economic and social background and, second, a linear regression, with the monthly per capita expenditure

of individuals as the dependent variable to ascertain the difference in expenditures given their regional, economic and social background. The paper finally underscores the plurality of socio-economic variables in poverty intensification.

Madhya Pradesh — A Backdrop

Poverty in India has a chequered history (Ravallion and Datt 1996b) not only in the debate on its computations, but also in the context of its emergence and determinants. The debate on poverty trends in the context of liberalisation has attracted the attention of many (Datt 1999, followed by many) but in the melee that followed; academics have sidelined the issue of varied diversity across social groups and regions, probably incidentally than deliberately. It is well agreed that poverty does not have similar determinants across states, as the process of emergence and the history of emergence of poverty in each state has a different background. Similarly, the responses to poverty mitigation programmes across the states also differ. It has been stated by many researchers that poverty does not have similar incidence as well as the mitigation programmes and does not have similar influences across the states (Ravallion and Datt 1996a; Datt and Ravallion 1998). Madhya Pradesh is one of the states that provide a few interesting pointers in this context. It is a state which has not performed very satisfactorily in the poverty mitigation scenario, and more than that, it is also one of the states that have high incidence of poverty. With the high density of weaker sections, the state provides a very good case study for looking into the determinants of poverty, especially from the social angle.

Located at the heart of the nation, Madhya Pradesh is geographically the largest state of India, with the seventh largest population, exhibiting a wide diversity across religious, social and economic groups. Though dominated by Hindus, it is also home to Muslims, Christians, Sikhs, Buddhists and Jains. Before the separation and formation of the erstwhile region of Chhattisgarh into a new state, Madhya Pradesh was home to a large share of Scheduled Tribe (ST) population, over and above the sizeable proportion of the Other Backward Castes (OBC) and Scheduled Caste (SC) populations in the state. (See Table 1). However, as Chhattisgarh was taken to be a part of Madhya Pradesh in the 1999-2000 surveys of NSS, it is included as one of the regions of the state in this study as well. The state of Madhya Pradesh is richly endowed with natural resources. It has vast reserves of various minerals, which include coal, bauxite, manganese, limestone, dolomite, laterite, rock phosphate, iron ore etc. Mining and quarrying activities alone contributed to the tune of 3.48 per cent at current prices to the state domestic product in 1999-2000. The state also boasts of a sizeable forest cover, which, according to the official figures, covers 31 per cent of the state area.

Despite such abundance of natural wealth and human resources, MP surprisingly has not exhibited a better position in respect of the standard of living of its population, as well as on other welfare indicators. In 1993-94, it ranked as the fourth poorest state in India after Orissa, Bihar and West Bengal, with a poverty rate of 40.64 per cent, according to official figures. Moreover, some recent studies have shown that since 1993-94, the state had fared badly and had actually registered a drop in the rate of poverty reduction (Datt and Ravallion 1998; Tendulkar and Sundarum 2003). Equally dismal were the education levels. According to the 1991 census, Madhya Pradesh ranked nineteenth amongst all states with respect to the overall literacy rate, which stood at 44.2 per cent, which was lower than the national average. In fact the literacy rates for females — rural areas (19.7 per cent) and urban areas (58.9 per cent) — were lower than the national averages for rural (30.6 per cent) and urban areas (64.1 per cent), while that for the males was found to be lower for the rural (51 per cent) but slightly higher for urban (81.3 per cent) areas than the national averages for rural (57.9 per cent) and urban (81.1 per cent) areas.

Table 1: Distribution of Regional Rural Population Across Social Groups
(In Percentage)

Region/ Social Group	Chhattisgarh	Vindhya	Central	Malwa	South	South Western	Northern	Total
ST	34.4	24.4	10.1	31.1	35.5	46.4	4.2	28.4
SC	15.0	15.0	26.3	15.3	12.9	9.5	28.9	16.7
OBC	43.9	41.8	47.6	39.1	44.0	36.0	40.4	42.1
Others	6.7	18.9	16.0	14.5	7.7	8.1	26.4	12.8

Source: Calculations based on the 55th Round Employment data, NSSO. (Thorat 2003)

The state stands at quite a dismal position with respect to both birth (32.3) and death rates (11.1), which were higher than the national averages of 27.5 and 9 respectively (for 1996), which is also true for both rural and urban areas. Similar was the case with total fertility [4.2 - (1993)] rate and infant mortality rates [97 - (1996)], which are higher than the national averages of 3.5 and 74 respectively. Life expectancy at birth, i.e., 54.3, too was lower than the national average of 58.7. These empirical observations clearly indicate that the state's performance on the economic and social development scale leaves much to be desired, requiring a closer look at the composition of the most deprived classes among the state and their particular socio-economic handicaps. In the following paragraphs an analysis the economic and social composition of the poor as well as the incidence of poverty across economic and social categories has been given.

Aggregates in Disaggregated Form

The moment we look at the aggregated picture of poverty in Madhya Pradesh, we are forced to form a depressing opinion. However, when we get to the disaggregated scenario, the finer alcoves start emerging. We are attempting here an analysis of the aggregated picture followed by a disaggregated view to demonstrate this. A look at the aggregate rate of poverty in Madhya Pradesh reveals that the state had one of the highest poverty rates in India. Around 44 per cent of its rural population lived below the poverty line. The NSSO divides Madhya Pradesh into seven distinct regions, namely, Chhattisgarh, Vindhya, Central, Malwa, South, Southwestern and Northern. However, the distribution of this poor population across the seven regions of Madhya Pradesh was quite varied.

Table 2: Distribution of Rural Poor and Non-Poor Population Across the Region (In Percentage)

Group /Region	Chhattisgarh	Vindhya	Central	Malwa	South	South Western	Northern
Non-Poor	28.1	15.6	7.1	19.1	9.4	7.2	13.4
Poor	29.7	15.0	10.2	13.1	15.8	10.7	5.5
All	28.8	15.4	8.5	16.5	12.2	8.8	9.9

Source: Calculations based on the 55th Round Employment data, NSSO. (Thorat 2003)

The distribution of poor ranged from as high as 29.7 per cent to as low as 5.5 per cent across the regions. Of the total poor in Madhya Pradesh, the largest numbers are found in the region of Chhattisgarh at 29.7 per cent, which incidentally was also the most populous of all the seven rural regions. Next was the South Region, which has as high as 15.8 per cent of the state's poor, whereas it accounted for only 12.2 per cent of the total rural population. Immediate next was Vindhya, accounting for 15 per cent of the poor and 15.4 per cent of the rural population. The percentage of poor accounted by Malwa dropped down to 13.1 per cent of the total rural poor, while having 16.50 per cent of the rural population. The two regions of Southwest and Central came next with 10.7 per cent and 10.2 per cent of the poor, and also sharing almost identical percentages of rural population of 8.50 per cent and 8.80 per cent respectively. Of all the regions, the Northern region accounted for the least number of rural Poor, just 5.5 per cent, while accommodating 9.9 per cent of the rural population.

The regions of Chhattisgarh, South, Vindhya and Malwa had high concentration of the poor and together these regions housed 73.6 per cent of the state's total poor population. This distribution of the poor population across the seven regions revealed that Chhattisgarh had the highest poor concentration of

29.7 per cent, and, the Northern region showed the lowest such concentration of 5.5 per cent (Table 2).

Table 3: Region-wise Incidence of Poverty in Rural Areas Across the Social Groups

(In Percentage)

Region / Social Group	ST		SC		OBC		Others	
	Non-Poor	Poor	Non-Poor	Poor	Non-Poor	Poor	Non-Poor	Poor
Chhattisgarh	45.9	54.1	48.8	51.2	60.3	39.7	73.8	26.2
Vindhya	38.5	61.5	46.9	53.1	60.5	39.5	80.3	19.7
Central	20.4	79.6	40.1	59.9	48.3	51.7	71.3	28.7
Malwa	47.5	52.5	53.1	46.9	75.6	24.4	85.9	14.1
South	32.8	67.2	37.6	62.4	46.6	53.4	78.5	21.5
South Western	30.8	69.2	35.8	64.2	62.2	37.8	76.7	23.3
Northern	57.8	42.2	74.1	25.9	73.0	27.0	83.6	16.4
All	40.5	59.5	50.7	49.3	61.1	38.9	79.8	20.2

Source: Calculations based on the 55th Round Employment data, NSSO. (Thorat 2003)

Seeking Explanation of Poverty

Land Ownership

The state's population is divided into two categories landless and landed. The landed are further sub divided into five classes, depending upon the actual area owned by individuals. The land holding pattern indicates that 8.5 per cent of the population was landless, while as high as 24.2 per cent were marginal landowners (who were effectively landless). 18.4 per cent and 18.5 per cent of the cultivators owned small and medium sized holdings respectively, while 17.02 per cent were large landowner and 11.5 per cent are very large landowners. Marginal landowners were therefore, the numerically dominant group. Thus, 32.7 per cent of the rural population was landless or near landless. For any rural region dependent on agriculture, land was probably the single most valuable asset to possess, albeit mere possession did not guarantee economic well-being. However, for a rural inhabitant, engaged in agriculture, land ownership could play a crucial role. In case land was owned, then it became an important determinant. Availability of irrigation, rural credit, research and extension facilities became important variables affecting the productivity of land only at the second stage. Alternatively, in the absence of ownership, access to non-farm employment, extent of diversification of non-farm occupation, the prevailing wage rates etc, would determine whether a rural household was poor or non-poor.

It is essential to understand how poverty is associated with ownership of land or the lack of it. A comparison of the landholding pattern of the poor with that

of the non-poor in the rural regions sheds some light on the land and poverty linkage. A regional analysis, reveals, that the incidence of landlessness is found to be high among the poor than the non-poor. This was true across all the regions except the Southwestern region, where the trend was opposite. A majority amongst the poor were also found to be marginal farmers, than the non-poor across all regions except Malwa, where most of the non-poor were marginal. In at least five out of the seven regions most of the poor were small farmers, while in the other two it was the other way round. The percentage of medium-sized farmers too was high amongst the poor in at least five regions.

Table 4: Pattern of Land Holding in Rural Areas Across the Regions
(In Percentage)

Size of Holding	Chhattisgarh	Vindhya	Central	Malwa	South	South Western	Northern
Marginal	27.1	17.7	24.0	16.8	32.0	38.2	16.0
Small	25.7	19.9	17.6	19.0	19.1	11.9	18.3
Medium	18.3	20.3	16.6	19.5	17.4	14.5	21.7
Large	17.7	13.8	16.8	16.0	14.5	22.4	20.3
Very large	8.3	11.2	14.3	13.1	10.9	11.9	16.6

Note: Marginal: 0.01-0.40 hectare; Small: 0.41-1.00 ha, Medium: 1.01-2.00 ha, Large: 2.01-4.00 ha, and Very Large: 4.2 ha and above.
Source: Calculations based on the 55th Round Employment data, NSSO (Thorat 2003).

In contrast to this, as we moved towards larger land size holdings, we found that, the situation is completely different. The proportion of large farm owners amongst the poor was lower than that of the non-poor. Moreover, less than 10 per cent were very large farmers, in most of the seven regions, while at least 10 per cent and at most 21.9 per cent of the non-poor were large farmers. We have provided the incidence of poverty for each land holding class of people across regions.

In all the regions the poverty rates were highest for the land-less population, except in southwest and in Malwa, where it was the second highest. In the Southern region, as high as 85.3 per cent of the landless were poor; while Northern had the lowest incidence of 37 per cent (although the highest rate across land classes in this region). In the two regions of Malwa, and Southwest, it was the small and medium farmers who had the highest poverty rates respectively. After the landless, the marginal landowners were the ones who had the highest poverty rates in three regions. Small owners in two regions and medium size owners in one region also displayed second highest poverty rates. (Table 5)

Thus aggregating across regions we found that at the state level, the incidence of poverty was the highest for the landless population (57.4 per cent),

Table 5: Land Holding-wise Distribution of Rural Poor and Non-Poor Households Across the Regions

(In Percentage)

Size of Holding	Economic Group	Chhattisgarh	Vindhya	Central	Malwa	South	South Western	Northern	Total
Marginal	Non-Poor	52.1	40.1	36.1	66.6	37.6	43.1	70.0	48.7
	Poor	47.9	59.9	63.9	33.4	62.4	56.9	30.0	51.3
Small	Non-Poor	46.1	44.4	48.7	45.5	45.8	40.8	72.3	48.0
	Poor	53.9	55.6	51.3	54.5	54.2	59.2	27.7	52.0
Medium	Non-Poor	59.6	63.1	41.4	60.7	38.3	36.9	64.4	55.5
	Poor	40.4	36.9	58.6	39.3	61.7	63.1	35.6	44.5
Large	Non-Poor	59.0	83.6	53.8	81.7	53.2	52.5	83.1	66.6
	Poor	41.0	16.4	46.2	18.3	46.8	47.5	16.9	33.4
Very large	Non-Poor	70.7	95.9	71.9	88.3	63.8	59.2	94.7	79.5
	Poor	29.3	4.1	28.1	11.7	36.2	40.8	5.3	20.5

Source: Calculations based on the 55th Round Employment Data, NSSO. (Thorat 2003)

followed by the small farmers (52 per cent), the marginal farmers (51.3 per cent) and the medium landowners at 44.5 per cent. Moreover, since the data surprisingly shows that there were poor even amongst the large and very large landowners, one is compelled to think of this as a survey mistake or false reporting by respondents. However, the risk of being poor reduced progressively with increased size of land holding. The size of the holding was crucial and the larger the size, the lesser was the chances of falling below the poverty line. It could also be seen from the results that across regions, it was the poor amongst the marginal landowners, the small owners and medium owners who made up the bulk of the regional poor (Table 5). But eventually poverty would also be dictated by the employment characteristics of households..

Table 6: Incidence of Poverty within the Rural Households Across the Regions (In Percentage)

Region / Economic Group	SEA		SENA		Agricultural Labour		Other Labour		Others	
	Non-Poor	Poor	Non-Poor	Poor	Non-Poor	Poor	Non-Poor	Poor	Non-Poor	Poor
Chhattisgarh	62.5	37.5	63.1	36.9	41.3	58.7	55.3	44.7	75.4	24.6
Vindhya	72.0	28.0	64.9	35.1	24.3	75.7	33.8	66.2	88.9	11.1
Central	60.1	39.9	50.0	50.0	33.6	66.4	19.7	80.3	68.9	31.1
Malwa	79.2	20.8	80.2	19.8	37.4	62.6	34.7	65.3	87.3	12.7
South	52.4	47.6	68.0	32.0	29.1	70.9	35.6	64.4	56.9	43.1
South Western	53.5	46.5	66.9	33.1	36.0	64.0	24.2	75.8	59.2	40.8
Northern	79.9	20.1	71.3	28.7	64.5	35.5	41.1	58.9	86.3	13.7
All	67.6	32.4	66.7	33.3	36.9	63.1	36.1	63.9	76.3	23.7

Note: Share of poor / Non-Poor in each category of workers.
Source: Calculations based on the 55th Round Employment data, NSSO. (Thorat 2003)

Household Types and their Effect on Poverty

Here we have tried to examine the poverty-household linkage at the state and the regional levels. Classifying the population by household types revealed that nearly half of the population, 45.70 per cent, was 'Self-employed in Agriculture (SEA)', followed by 'Agricultural Labourers (AL)', who constituted 35.1 per cent of the rural people. Which meant 80.8 per cent of the rural population was involved directly in agricultural activities. It would, therefore, be safe to assume that most of the rural poor too would fall in these two household categories. A look at the

distribution of the rural poor across household types gave some insight into these linkages. The distribution of the poor in each region across household types revealed that greater numbers of poor were employed as AL, followed by SEA, except in North, where this trend had been reversed. At the state level, this translated into 50.2 per cent of the rural poor being employed as AL, followed by 33.5 per cent employed as SEA. Thus, 83.7 per cent of rural poor were directly involved in agriculture. On the other hand, only 6 per cent were 'Self-employed in Non-agriculture (SENA)' and 3.5 per cent in the 'Others (OTH)' category. (Table: 7). Vindhya region has the highest percentage of its poor in the AL category at 53.6 per cent while as high as 53.6 per cent of the poor in the Northern region are employed in the SEA category. Thus irrespective of region, a poor person in rural Madhya Pradesh is most likely to be either an AL or be SEA.

Also, it was not entirely unexpected to find that after the 'Other Labour (OL)' category, the second highest incidence of poverty was found in the AL category, at 63.1 per cent. This poverty rate was only 0.8 per cent lower than that for the OL category. The risk for this category was lower than that for OL; however, the incidence was equally high. Following these, the self-employed in non-agriculture (SENA) category, which employed 8.2 per cent of the rural people, had the third highest poverty rate of 33.3 per cent. The fourth highest poverty rate was among the SEA, of 32.4 per cent, higher only than the poverty rate of 23.7 per cent for the Others (OTH) category. (See Table 6)

Table 7: Region-wise Distribution of Poor and Non-Poor Rural Households Across Activities

(In Percentage)

Region / Economic Group	SEA		SENA		Agricultural Labour		Other Labour		Others	
	Non-Poor	Poor	Non-Poor	Poor	Non-Poor	Poor	Non-Poor	Poor	Non-Poor	Poor
Chhattisgarh	48.7	34.9	8.5	6.0	31.2	53.1	2.5	2.4	9.2	3.6
Vindhya	72.0	36.9	8.4	6.0	13.1	53.6	1.0	2.6	5.5	0.9
Central	48.1	28.4	12.5	11.0	26.8	46.9	2.7	9.7	9.9	4.0
Malwa	54.1	26.3	12.0	5.5	14.7	45.7	5.4	18.8	13.8	3.7
South South	45.7	31.3	10.8	3.8	27.5	50.7	6.4	8.7	9.5	5.5
Western	42.1	31.6	14.5	6.2	36.2	55.5	1.2	3.1	5.9	3.5
Northern	69.0	53.6	6.3	7.9	17.9	30.3	1.3	5.6	5.5	2.7
All	55.3	33.5	9.8	6.2	23.1	50.2	2.9	6.6	8.8	3.5

Source: Calculations based on the 55th Round Employment data, NSSO (Thorat 2003).

Consequently, if a person was poor, there was almost equal chance of his/her being an agricultural labourer; if not, then being self-employed in agriculture. The chance of being poor was thus highest for those employed as OL, followed by AL, SENA and finally SEA. In the agriculture-related activities, the chance of being poor was highest for an AL, and outside of agriculture it was the highest for the wage labourers.

Education as a Poverty Dampener

In a rural economy where the living standards depend on many aspects, the education level of an individual could increase manifold the possibility of deriving additional benefits from the same asset base or open up new avenues of income generation. Education becomes especially important for an individual in the absence of the traditional rural asset base or personal skills. Moreover, education is desirable not merely for its income generating or enhancing ability, but also for the overall development of any individual. In the following paragraphs we have attempted to ascertain whether education and the levels of education obtained had an impact on the living standards of the rural population.

To achieve this, the following three observations were made: a) comparison of levels of education across the poor and non-poor population, b) incidence of poverty within education classes; c) share of the poor from each education class in the total poor of a region and at the state level. First, a distinction was made between the literate and the illiterate. Then, the literate population was further disaggregated into those educated below the secondary level, those educated till the secondary, and finally, those educated above the secondary level. It was observed that more than half, that is, 56.3 per cent, of the state's rural population was illiterate. Most, that is 38.6 per cent, were educated only up to the secondary level. While only 2.1 per cent had secondary level education, a mere 3 per cent of the population was educated above the secondary level. In fact, in the year 2003, the percentage of students passing the tenth standard state level exams in MP was the lowest among all the states of India. Moreover, the state registered the lowest passing rate for the tenth standard till then. These facts point to the low levels of education as a prime determinants for the low levels of living standards and indicate that much is desirable in terms of building a reliable and efficient education system for the state.

A comparison of the educational levels of the poor and the non-poor showed that more persons among the poor are illiterate, i.e., 64.6 per cent, as against-49.7 per cent among the non-poor. This was true of all the seven regions of Madhya Pradesh. Thus, illiteracy was higher among the poor, whereas, with respect to the other three education groups, the percentage of poor who were literate by each class, was lower than that for the non-poor. The proportion of the literate within each education class is higher for the non-poor than the poor (Table 8).

Table 8: Education Levels of Poor and Non-Poor (State Level)

(In Percentage)

Education Class	Non-Poor	Poor	Total
Illiterate	49.7	64.6	56.3
Below Secondary	42.5	33.6	38.6
Secondary	3.0	1.0	2.1
Secondary and above	4.8	0.8	3.0

Source: Calculations based on the 55th Round Employment data, NSSO. (Thorat 2003)

Table 9: Share of Poor and Non-Poor by Level of Education

(In Percentage)

Regions / Education Class	Illiterate		Below Secondary		Secondary		Secondary and Above	
	Non-Poor	Poor	Non-Poor	Poor	Non-Poor	Poor	Non-Poor	Poor
Chhattisgarh	58.1	41.9	79.7	20.3	80.9	19.1	98.2	1.8
Vindhya	96.8	3.2	79.6	20.4	75.3	24.7	100.0	0.0
Central	63.1	36.9	70.9	29.1	100.0	0.0	71.2	28.8
Malwa	70.9	29.1	82.6	17.4	100.0	0.0	100.0	0.0
South	45.7	54.3	66.6	33.4	60.8	39.2	61.4	38.6
South Western	54.0	46.0	54.2	45.8	100.0	0.0	89.3	10.7
North	82.4	17.6	90.3	9.7	100.0	0.0	95.6	4.4
Total	65.2	34.8	76.5	23.5	89.6	10.4	94.6	5.4

Source: Calculations based on the 55th Round Employment Data, NSSO (Thorat 2003).

Next, the share of education by each class in the total rural poor is examined. Our analysis reveals that a majority of the poor, 64.56 per cent, was in fact illiterate. 33.61 per cent of the poor were educated below secondary level, 0.99 per cent of the total were secondary-educated, while a mere 0.85 per cent of the poor were educated above secondary level. Therefore, the share of illiterate among the rural poor is the highest while the share of educated among rural poor fell progressively as the level of education rose.

The evidence points to a clear inverse relationship between the level of education and poverty. A poor person was more likely to be illiterate than being literate, but if found to be literate, then he or she was more likely to have a lower level of education than a higher level. In other words, illiterate persons faced higher risk of being poor than literate. However, the risk of being poor fall with rise in education levels.

Poverty and Social Groups: Regional Distribution

An interesting aspect of the poverty analysis is the social composition of the rural poor. Whether the social background of an individual plays any significant role in pushing or pulling the person out of poverty is an aspect that needs to be understood. It can be considered while formulating any poverty alleviation policy that proposes to benefit all those who need it irrespective of any caste or religious background. The population of Madhya Pradesh could be grouped into four major social groups: Scheduled Tribes (ST), Scheduled Castes (SC), Other Backward Castes (OBC) and Others- (OTH). The OBCs were the single largest social group making up 42.07 per cent of the population. They were followed by the ST, whose share is 28.44 per cent. The SCs constituted the third largest group at 16.65 per cent and the OTH the smallest at 12.8 per cent of the population. (See Table 1.)

Table 10: Region-wise Incidence of Poverty in Rural Areas Across the Social Groups

(In Percentage)

Regions / Social Groups	ST		SC		OBC		Others	
	Non-Poor	Poor	Non-Poor	Poor	Non-Poor	Poor	Non-Poor	Poor
Chhattisgarh	45.9	54.1	48.8	51.2	60.3	39.7	73.8	26.2
Vindhya	38.5	61.5	46.9	53.1	60.5	39.5	80.3	19.7
Central	20.4	79.6	40.1	59.9	48.3	51.7	71.3	28.7
Malwa	47.5	52.5	53.1	46.9	75.6	24.4	85.9	14.1
South	32.8	67.2	37.6	62.4	46.6	53.4	78.5	21.5
South Western	30.8	69.2	35.8	64.2	62.2	37.8	76.7	23.3
Northern	57.8	42.2	74.1	25.9	73.0	27.0	83.6	16.4
All	40.5	59.5	50.7	49.3	61.1	38.9	79.8	20.2

However, the pattern of poverty incidence within each of these social groups across all the regions did not follow the distribution as that of their population shares. Data indicates that at the state level, the incidence of poverty being the highest amongst the ST communities (59.5 per cent) was followed by the SC (49.3 per cent), the OBC (38.9 per cent) and lastly the OTH (20.2 per cent). This is also true of all the regions, the only exception being the Northern part of MP, where the second highest incidence of poverty after the ST was that of the OBC (and not the SCs), followed by the SCs and subsequently, the others (OTH). A look at the figures across the tables revealed that the ST population suffered the most from

poverty. The odds of being poor given the fact that the person belonged to a particular social group have been given at the end. (See Table 1)

Logistic Regression Analysis

The pointers emerging from the analysis suggest that poverty incidence varied with the economic features of individuals such as area owned, type of household or levels of education etc. But, interestingly, at the same time, within each of these economic category sub-classes, it varied across social groups as well. For instance, landlessness is known to be an important poverty-inflicting factor. However, within the landless community, the social background to which one belongs has an intense effect on the poverty incidence. Thus, we found within the landless that the incidence of poverty was the highest among the ST, followed by SC and the OBC. This was true across other land-holding categories as well. This was also observed for the other two factors affecting poverty, that is, household types and education classes. This phenomenon has been examined in the following paragraph.

The main focus of the logistic regression exercise flows from two objectives: (i) to obtain the odds of a person being poor, given variations in the landholding size, household type, education levels and social groups; and (ii) to obtain the odds of a person being poor, given variations in social background after controlling for the land size, household type or education level of the household. Here the chosen variables for the analysis cover the economic status of the household. The analysis was conducted at the household level and, therefore, the poor and non-poor distinction was done at the household level itself. Thus, an individual would be poor if he or she belonged to a poor household. This variable (poor / non-poor) was taken as the dependent variable and it took the value 1 if the household was poor, or the value 0, when it was non-poor. Since the dependent variable was dichotomous in nature, the normal regression procedure was not applicable. *A Logistic regression analysis was therefore used to generate the odds of a household being poor, given certain specific characteristics of the household.*

The basic form of the logistic function is:

$$P = \frac{1}{1 + e^{-z}}$$

Here, Z is the predictor variable and e is the natural logarithm. An alternative form of this equation is:

$$P = \frac{1}{1 + e^{z}} = \frac{\exp(z)}{1 + \exp(z)}$$

Where exp (z) is another way of writing e^z. When Z becomes infinitely negative, e^z becomes infinitely large, so that P approaches 0. When Z becomes infinitely positive, e^z becomes infinitely small, so that P approaches unity.

Given,

$$P = \frac{1}{1 + e^z}$$

then

$$\frac{P}{1 - P} = e^z$$

Taking natural logs on both sides, we get $\log \frac{p}{1 - p} = z$

The quantity P/ (1-P) is called the odds and log [P/(1-P)] is called the log odds or the logit of P. Thus

$$odds \equiv \frac{p}{1 - p} \equiv \Omega$$

$$Ln[P/1-P] = \alpha + \sum_1^6 Kb(3x3) + \sum_1^5 kb(2x2) + \sum_1^4 Kb(3x3) + \sum_1^4 Kb(4x4) + e$$

(land)   (HH Type)   (Education)   (Social group)

The following variables were included in the analysis.

Land:
a)   L.L = Landless households.
b)   Marg. Land = Marginal landowner households.
c)   Small. Land = Small landowner households
d)   Medium. Land = Medium landowner households.
e)   Large. Land = Large landowner households.
f)   V. large. Land = Very large landowner households.

Household Type:
a)   SENA = Self-employed in non-agriculture.
b)   AL = Agriculture labourers.
c)   OL = Other labourers.
d)   SEA = Self-employed in agriculture.
e)   OTH = Others.

Education Levels:
a)   Illiterate
b)   Literate below secondary.
c)   Literate till secondary.
d)   Literate above secondary.

Social Groups:
a)   ST = Scheduled tribes.
b)   SC = Scheduled castes.
c)   OBC = Other backward castes.
d)   OTH = Others apart from the above three.

Odds of Being Poor

Hereafter, we analyse the odds in the context of the logistic regression analysis. In order to systematise the analysis, we have grouped the interpretation in the groups of variables that not only facilitated the analysis but also helped highlight the group characteristics.

i. Education Levels: Here the level of education of the head of the household was taken under four categories. The results indicated that an illiterate person had 7 times higher chances of being poor.

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i)   Illiterate: Have 4.4 times significantly higher odds of being poor.
ii) Below Secondary: Have 1.8 times significantly higher odds of being poor.
     than the rest.
iii) Secondary: Have 1.8 times significantly higher odds of being poor than the rest.
iv) Above Secondary: Reference period.

Those literate below secondary had 4.4 times higher odds while those educated till secondary had only 1.8 times the odds of being poor compared to those literate above secondary. Thus, the odds of being poor were much higher for the illiterate as compared to the literate, whereas, among the literate, the odds were highest for those educated below secondary, followed by for those educated till secondary. The odds were lowest for those educated above secondary.

ii. Household Type: The odds of a Household being poor given the type of the household, were as follows, with the household category 'others' as the reference. Among the rural household, the odds of being poor for the 'other labourer' are highest at 5.7, followed by the agricultural labourers at 5.5. Next those who are self-employed in non-agriculture, have 1.6 times the odds of being poor. Those self-employed in agriculture have the lowest odds at 1.5. Clearly wage labourers are more susceptible to poverty than those with some form of asset base, either land of capital.

SENA : Have 1.6 times significantly higher odds of being poor.
Al   : Have 5.5 times significantly higher odds of being poor.
OL   : Have 5.7 times significantly higher odds of being poor.
SEA   : Have 7 times significantly higher odds of being poor.

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iii. Land Holding Size: The landless had the highest odds of being poor, namely 5.2 times than the reference category (large land holders). The small landowner had slightly lower odds of being poor at 4 than the marginal landowners who had odds of 4.2. Next were the medium landowners at 3.1, followed by the large landowners at 1.9. Clearly as expected the assetless farmers were the most susceptible to poverty. However as the area owned increases this susceptibility fell progressively.

Landless	:	Have 5.2 times significantly higher odds of being poor.
Marginal	:	Have 4.2 times significantly higher odds of being poor.
Small	:	Have 4 times significantly higher odds of being poor.
Medium	:	Have 3.1 times significantly higher odds of being poor.

iv. Social Groups: Across social groups, the category of 'others' was taken as the reference. Compared to those, the odds of being poor were 5 times higher for the Scheduled Tribes, 3 times for the Scheduled Caste and again 2 times for the Other Backward Castes. Thus, the tribes were most prone to fall below the poverty line. Among the social groups, the ST had the highest odds of being poor, who were followed by the SC, and then closely by the OBC. The OTH had the lowest odds of being poor. That clearly brings out that land holding acted as an insurance and shield against poverty, despite the low productivity.

ST	:	Have 5 times significantly higher odds of being poor.
S C	:	Have 3 times significantly higher odds of being poor.
OBC	:	Have 2 times significantly higher odds of being poor.

v. Land Size and Social Groups: As seen earlier, the pattern across social groups repeated itself across all land-holding categories as well. Amongst the landless, the odds of impoverishment were 6 times higher for the ST, 4 times higher for the SC and 3 times higher for the OBC as compared to all the rest.

Similarly, across marginal holders the odds of being poor are 4 times for the ST, 3.5 times for the SC and 3.1times for the OBC compared to all the rest. Also, across the small land holders, the same pattern repeats itself with the highest odds for the ST at 4 times followed by the SC at 2.4 and lastly by OBC at 2 times.

Amongst the illiterates the odds of being poor were the highest for the ST population being 4 times than the rest of the population. The SCs as a social group followed them with 2.9 and then the OBC at 2. If we looked at those educated below secondary level, we find that again the STs had 2.3 times higher odds followed by SCs group with 2.1 times higher odds and lastly, the OBCs at 1 time the odds of being poor than the rest of the population. Due the lack of adequate sample size, a similar exercise could not be conducted for the secondary and the above secondary categories.

Odds of Being Poor Across Land-Holding Categories

i) Landless

ST   :   Have **10** times significantly higher odds of being poor than the rest.

SC   :   Have **6** times significantly higher odds of being poor than the rest.

OBC :   Have **4** times significantly higher odds of being poor than the rest.

ii)   Marginal

ST   :   Have **3.5** times significantly higher odds of being poor than the rest.

SC   :   Have **3.1** times significantly higher odds of being poor than the rest

OBC :   Have **2.8** times significantly odds of being poor than the rest.

iii)   Small

ST   :   Have **4** times significantly higher of being poor than the rest.

SC   :   Have **2.49** times significantly higher odds of being poor than the rest.

OBC :   Have **2.07** times significantly higher odds of being poor than the rest.

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vi. Household Type as a Control Variable: Followed by this the odds of a household being poor were ascertained along with their social background, having first controlled for the household background. Across household types too we found the earlier pattern repeating itself. For those self-employed in non-agriculture, we found that the odds of being poor were 5 times for the ST, 4 times for the SC and 3 times for the OBC. For agricultural labourers, the odds were 3 times for the ST, 1.89 for the SC and 1.66 for the OBC. The starkest difference in the odds was found for

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Odds of Being Poor by Work Activity

SENA

ST   :   Have 5 times significantly higher odds of being poor than the rest.

SC   :   Have 4 times significantly higher odds of being poor than the rest.

OBC :   Have 3 times significantly higher odds of being poor than the rest.

AL

ST   :   Have 3 times significantly higher odds of being poor than the rest.

SC   :   Have 1.89 times significantly higher odds of being poor than the rest.

OBC :   Have 1.66 times significantly higher odds of being poor than the rest.

OL

ST   :   Have 23 times significantly higher odds of being poor than the rest.

SC   :   Have 22 times significantly higher odds of being poor than the rest.

OBC :   Have 8 times significantly higher odds of being poor than the rest.

SEA

ST   :   Have 4.8 times significantly higher odds of being poor than the rest.

SC   :   Have 2.6 times significantly higher odds of being poor than the rest.

OBC :   Have 1.7 times significantly higher odds of being poor than the rest.

the other labourers category. The ST had 23 times higher, the SC 22 times and the OBC had 8 times higher odds of being poor than the rest. For those self-employed in agriculture, the odds were again highest at 4.8 times for the ST, followed by 2.6 times for the SC and 1.7 times for the OBC. Thus we found that across land-holding classes, education classes and household types, the ST had the highest odds of being poor, followed by the SC, and then the OBC.

vii. Education Level as Control Variable: Amongst the illiterates the odds of being poor were highest for the ST population which is 4 times than the rest of the population. The SCs as a social group followed them with 2.9 and then the OBC at 2. If we looked at those educated below secondary level we find that again the STs had 2.3 times higher odds followed by SCs group with 2.1 times higher odds and lastly, the OBCs at 1 time the odds of being poor than the rest of the population. Due to the lack of adequate sample size, a similar exercise could not be conducted for the secondary category.

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i) Illiterate:

ST   : Have 4 times significantly higher odds of being poor than the rest

SC   : Have 2.9 times significantly high odds of being poor than the rest

OBC : Have 2 times significantly higher odds of being poor than the rest

ii) Below Secondary:

ST   : Have 2.3 times significantly higher odds of being poor than the rest

SC   : Have 2.1 times significantly high odds of being poor than the rest

OBC : Have 13 times significantly higher odds of being poor than the rest

iii) Above Secondary: Reference period.

Linear Regression Analysis:

In the above analysis, we tried to look at the probability of a household getting categorised as poor or non-poor on the basis of economic and social factors. It is a normal practice in the literature to measure poverty in terms of calorie intake and be represented by monthly per capita income as the nearest proxy. We are not averse to the analysis of explaining poverty status (represented by Monthly Per Capita Income) of a household with the help of various indicators, but this exercise we have undertaken to bolster our earlier findings. Here we have carried out a simple *linear regression* analysis to ascertain the impact of socio-economic factors considered above, on the *monthly per-capita expenditure* of the individuals directly. Moreover, this exercise was repeated across the seven regions to see whether this impact on monthly per-capita expenditure varied across regions. The definitions of the dependent and the independent variables have been given below.

The regression equation is as follows:

$$\hat{Y}i = b_{oi} + b_{1i}x_{1i} \ldots\ldots\ldots + b_{ni}x_{ni}$$

$$n = 1 \ldots 11$$
$$i = 1 \ldots\ldots 7$$

Dependent Variable: MPCE - Monthly per-capita consumption expenditure of individuals.

Independent Variables

Land	= Area owned in hectares.
B-sec	= Educated below secondary (absolute number).
Sec	= Educated till secondary (absolute number).
Above sec	= Educated above secondary (absolute number)
ST	= Scheduled Tribe population.
SC	= Scheduled Caste population.
OBC	= Other Backward Castes population.
SENA	= Self-Employed in Non-Agriculture (absolute number).
AL	= Agricultural Labourers (absolute number).
OL	= Other Labourers (absolute number).
SEA	= Self-Employed in Agriculture (absolute number).

State-Level Regression Results

With MPCE as the dependent variable, the independent variables taken here were — land, household type, education levels and social group of the individuals. The correlation matrix generated for these variables shows that the correlation between MPCE and a few of the variables chosen was significant at 5 per cent level. Among all the variables, the correlation was found to be high for household types and education. Across social categories, it was highly significant for social groups as against religion.

Table 11: Correlation Matrix

	MPCE	Land	Education Class	Household Type	Religion	Social Group
MPCE	1	-	-	-	-	-
Land Owned	0.239*	1	-	-	-	-
Education Level	0.253*	0.093	1	-	-	-
Household Type	0.262*	0.21	0.189	1		
Religion	0.023	-0.017	0.05	-0.044	1	
Social Group	0.236	0.165	0.177	0.08	0.074	1

Note: Correlations marked * are significant at the 0.05 level

The regression and the correlation results revealed the explanation for variations in the monthly per-capita expenditure of the individuals. The regression coefficient for land was significant and indicated that an one-hectare land holding enhanced the consumption expenditure by Rs. 11.46 per month. With assured

irrigation and extension provision, this figure could go up substantially. To represent the education levels of individuals, dummies were used. The dummy for being illiterate had been taken as the reference point and the coefficients of the remaining education classes had been given in relation to it. The results indicated that an increase in the education level from being illiterate to being educated till below secondary resulted in a Rs. 21.37 increase in the MPCE of an individual. Similarly, a rise in the education level from illiterate to secondary and above secondary caused a Rs. 102 and Rs. 190 increase in the MPCE of the individual respectively.

Table 12: Regression Coefficients - MPCE

Variables	Unstandardised Coeff		Standardised Beta
	B	Standard Error	
(Constant)	529.285	0.132	-
Land	11.462	0.01	0.16
Below Secondary	21.378	0.049	0.053
Secondary	102.777	0.162	0.075
Above Secondary	190.9	0.139	0.166
ST	-95.735	0.083	-0.219
SC	-79.294	0.087	-0.15
OBC	-50.31	0.075	-0.126
SENA	-99.86	0.121	-0.139
AL	-153.618	0.101	-0.372
OL	-168.919	0.142	-0.179
SEA	-108.646	0.101	-0.275
REG: Chhattisgarh	-27.973	0.087	-0.064
REG: Vindhya	-36.55	0.094	-0.067
REG: Central	-31.659	0.108	-0.045
REG: Malwa	44.451	0.094	0.084
REG: South	-35.546	0.101	-0.059
REG: S.West	-36.284	0.11	-0.052

Note: All coefficients are significant at 5 per cent level. REG - Regional Dummies $R^2 = 0.96$ F value = 8.3, Number of observation = 28,417

Poverty as an essential evil to be carried when one was born in a particular social group has been clearly borne out in the exercise. The results pertaining to different social groups are quite interesting. To represent the social group categories, the dummy for the 'Others (OTH)' group was taken as the reference point. In relation to this reference, the ST population had MPCE lower by Rs. 95, the SC population spent Rs. 79 less and the OBC population has MPCE Rs. 50 below the reference. Household Type was taken as another representative variable. Here,

the dummy for the 'Others', who were primarily regular salaried and wage earners, has been taken as the reference. The wage labourers spent much less on their monthly consumption as compared to the self-employed, and that was not unexpected. Thus, the other labourers (OL) spent Rs. 169 less and the agricultural labourers (AL) spent Rs. 153 per month compared with the others (OTH). On the other hand, those self-employed in and out of agriculture spent more than the wage labourers, but less than the others (OTH). The self-employed in agriculture (SEA) spent Rs. 108 less and those self-employed in non-agriculture (SENA) spent Rs.99 less than the others category on monthly consumption.

In order to seggragate the impact of regions, we have used regional dummies in the equations. NSS regions for Madhya Pradesh were also included in the regression to see how, being a resident of a particular region, modulated the consumption of an individual. The dummy for the Northern region was taken as the reference. This region had the lowest incidence of poverty across all the regions. The regression results revealed that households in Chhattisgarh, Vindhya , Central, South and Southwest MP spent less on MPCE than those in the Northern region. In the Malwa region, an average individual spent Rs. 44 more on monthly consumption, as compared to the Northern. This regional difference in MPCE was looked into further by running regression similar to the one above for each of the seven regions.

Explaining Poverty at the Regional Level: One advantage of running separate equations for each region is it helps bring the responses of the individual regions into play and highlight them and at the same time reap the advantage of bringing down the problems in the estimation usually present in a pooled equation. The results have been presented in Table 13.

Table 13: Results of Regression Equations for Regions- 1999-2000

Regions	Constant	Land	B-Sec	Sec	Above Sec	ST	S C	OBC	SEN A	AL	OL	SEA	R²
Chhattisgarh	474.69	6.16	20	101	159.02	-64	-55	-34	-102	-133	-112	-94	0.91
Vindhya	488.00	12.3	13.7	44.5	101.55	-69	-76	-55	-69	-163	-136	-99	0.93
Central	482.82	9.90	16.6	110	308.90	-85	-45	-13	-166	-173	-176	-94	0.904
Malwa	639.35	14.5	35.2	246	329.60	-188	-142	-106	-133	-195	-216	-125	0.92
South	465.25	17.2	8.66	65.2	108.16	-98	-85	-55	-23	-117	-103	-91	0.91
South West	483.53	6.77	11.90	78.8	172.41	-113	-119	-41	-61	-111	-112	-92	0.93
North	495.24	10.2	23.8	-4.37	100.66	-45	-42	-38	-65	-127	-125	-87	0.92

Note: All coefficients are significant at 1 per cent level
Source: Calculations based on the 55th Round Employment data, NSSO. (Thorat 2003)

Thus, a comparison of the coefficients for land and the sub-categories of education, household type and social group across the seven regions clearly showed that the effect of each of these categories on the MPCE of an individual varies across regions. For instance, an increment of one hectare in area of the land owned translated into higher MPCE, much more in the South (Rs. 17.18), Malwa (Rs. 14.54) and Vindhya (Rs. 12.27) regions than the other. Similarly, attaining higher education, above secondary, from being illiterate, meant a much higher rise in MPCE in the region of Malwa (Rs. 329) as against the Northern region (Rs. 100). Being an ST was the worst if one was a resident of Malwa region (Rs. -188) as opposed to someone belonging to the Others social group. Likewise, an agricultural labourer was worse off living in Malwa (Rs. -195) than in the Southwest region (Rs. 111), as against those belonging to the Others household category. Therefore, regional variations existed not only in the MPCE of individuals but also in the impact of select variables on the MPCE per head.

The regional analysis of the determinants of poverty in Madhya Pradesh indicated that it was not a uniform phenomenon even within the poor themselves. Within the poor population, the nature and context of poverty for a given individual was multidimensional with respect to its depth and causal factors. For a given incidence of poverty for the state, it was found to vary across the seven regions of the state. Therefore, the region of residence would have a bearing on the living standard of the individual. Then, within a given region, the incidence of poverty for the poor would depend upon a multitude of socio-economic and demographic factors. It would depend on factors such as: whether the person owned land or not, and if so, how much? What was the nature of the occupation of the individual? Is the person dependent on manual labour for livelihood or is self-employed in agriculture or non-agriculture? Is the person educated or is illiterate? In general, being educated was found to be beneficial even for the poor. Among these, the most important observation is the fact that a person belonging to a certain social group had a substantial effect on the poverty incidence of the poor, and the worst placed were SCs and STs.

Each of these socio-economic factors independently affected the incidence of poverty. Moreover, these factors also interacted with each other, and might have worsened or improved the situation due to interaction effects. As a consequence, poverty incidence depended not only on the independent effect of these factors but also on the combined effect of some combination of these factors and, therefore, which interaction was in play determined the severity of poverty. Thus, for instance, a person who was poor suffered more, that is, poverty got aggravated if he or she was also landless. Added to this, if the person was also illiterate, then the situation got worse. Further, if this particular individual also happened to belong to either the ST or the SC communities, then it did not get any worse than that.

The *linear regression*, which took the monthly per-capita expenditure (MPCE) of individuals as the dependent variable, and gauged the independent effect of each of the chosen factors, indicated that the level of education had the largest beneficial effect on MPCE. Acquiring education till or above secondary level increased the MPCE the most, for any individual. After education, second came the household type in the order of importance. A shift in the nature of occupation from being a wage labourer to say the other occupations, or being self-employed outside of agriculture, caused a substantial rise in the MPCE. Land features as the third important determinant, only after these two economic categories. Interestingly, the social group to which a person belonged had more bearing on the MPCE of the person than land. Within the social groups, the ST followed by the SC stood to gain the most in terms of a rise in their MPCE, assuming they could change their social category to that of others.

The *logistic regression* results indicated that within the land categories, the odds for being poor were highest for the landless, and these odds fell as the land size increased. Likewise, the odds of being poor were highest for the illiterate, as against the literate, and that these odds fell with a rise in the standard of education of the individuals. Across the rural household types, the highest odds of being poor were observed for the wage labourer categories, while the lowest were found for the self-employed in agriculture and the Others category. Among the social categories, the STs had the highest odds of being poor, followed by the SCs and the OBCs.

The element of interaction amongst these factors mentioned above was also brought out by the conditional logistic regression. Thus, if we were to look at the interaction of an economic category like land and a social category like caste, then one would find that across all land-holding classes, the odds of being poor were maximum for the STs followed by the SCs and then by the OBCs. The Others have the lowest such odds. An example of the interaction of two economic categories was that between land and household type. Across all land classes, the household categories of wage labourers, who were the agricultural labourers and the other labourers had the highest odds of being poor, whereas, the odds were the lowest for those engaged in other occupations or were self-employed outside of agriculture. Even with the level of education a person acquired, the odds of being poor changed or varied depending on the social background of the individual. Thus, among the illiterates and those educated till below the secondary, the odds were the highest for the STs, the SCs and then the OBCs, while being the lowest for the Others.

Conclusions

The incidence of poverty even within the poor population showed significant variations not only across the regions of the state, but also across

economic and social categories of the population. This difference in the poverty incidence, therefore, depended on how all of these factors combined and interacted with each other and pronounced or subdued the gravity of poverty for the poor. The implications for policy were, therefore, obvious. A general wide-sweeping policy measure for the poor might not, therefore, be as effective as it was hoped to be. As seen, even within those who were categorised as poor based on the concept of a poverty line, which by itself could be quite restrictive and limited, inequalities existed and intensity of poverty changed. For instance, an SC wage labourer household might need larger and guaranteed assistance for a longer period than a non-SC wage labourer. Similar would be the case across the SC and non-SC illiterate, landless or agriculture households.

As a consequence, poverty alleviation policies ought to conceive and devise multi-pronged strategies which targeted the poor falling within specific economic as well as social groups, rather than focusing separately on the economic categories of the poor or social groups among the poor (Dev 2002). This would ensure that such policies took account of all and not just a few handicaps responsible for impoverishment and thus could address all the issues of poverty and not just the obvious few. The governments' drive to address both economic and social deprivations in the country through various programmes (for the economically and the socially deprived) would gain much efficacy if it keeps in view the combined nature of factors causing these social deficiencies and formulates multi-pronged policies acting simultaneously on the causal factors. Policies such as legally enforceable compulsory education for the poor, reservation for the social minorities in schools, colleges and universities both public and private would have far-reaching benefits, not only for these groups but also in the form of participatory contribution to the economy in the long run. Provision of some form of asset base, either through renewed land distribution policy or capital asset provision, would act as a buttress against shocks as well. Thus, a simultaneous, strategic and pointed effort at all the causal factors, and not just the symptoms, of deprivation would help reduce it more effectively and might even eventually eradicate it altogether.

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Capacity Building of Community-Based Organisations for Participatory Development: Need, Approach and Strategy

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Abstract

The approaches to development through participation have been undergoing change. In the '70s, the stress was on popular participation and in the '80s, it was participatory development, and subsequently in the '90s, there was further shift from participatory development to capacity building. During the '70s and '80s, it was the NGOs who stressed on the people's participation for effective implementation of poverty alleviation programmes. However, since the '90s, the concept has been increasingly adopted by other development agencies as well as the government.

Experiments have shown that participation of community members in any developmental programme is essential for its sustainable development. To ensure their participation, development initiatives should be made by forming viable people's organisations with bottom-up approach. To achieve this, the government is providing a conducive atmosphere through decentralisation of power and by encouraging private and public partnership which facilitates developmental process at the cutting-edge level. Such an environment is paving the way for the emergence of Community-Based Organisations (CBOs) in the rural areas. In this context, the question generally asked is whether the groups promoted by various agencies have the capacity and capability to perform the required tasks. This paper tries to examine the need, approach and strategy for capacity-building of CBOs for empowering the poor to enable them to participate in developmental programmes for their sustainable development.

Introduction

The approaches to development through participation have been undergoing change. In the 70s, the focus was on popular participation and in the 80s, participatory development, and subsequently in the 90s, there was further shift from participatory development to capacity-building. During the 70s and 80s, it was

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the NGOs who stressed people's participation for the effective implementation of poverty alleviation programmes. However, since the 90s the concept has been increasingly embraced by the Government and similar other agencies as well.

Participatory development, particularly in the developing countries, is increasingly referred to in the context of development of disadvantaged sections of society. Participatory development is based on the premise that people are innovative, energetic, and responsive. What they need is an enabling environment, conducive enough to bring out their energies and traditional wisdom for productive purposes through proper facilitation.

Participatory approaches to development were initiated as a response to the failure of traditional top down approach for the development of the poor. Participatory initiatives, unlike top down one, provide ample opportunities and adequate support to the poor to become active partners, rather than remaining as passive recipients of the development benefits extended to them. It also helps develop a sense of ownership among the stakeholders that is essential for the sustainable development of any programme. Community based Organisations (CBO) is considered as the right platform for the promotion of participatory development of rural poor.

The role of CBOs in rural development is not new in the country. Traditionally, it is the CBOs that played a major role in taking care of the needs of people particularly living in the rural areas. However, the planned development initiated by the government with the advent of independence took care of major responsibility of delivering goods and services to the people, thereby marginalising the importance of CBOs in rural development. Although community development and rural development programmes initiated by the government have emphasised participation of the people, the top down approach that followed and the welfare orientation of the programme could not enlist adequate people's participation, thereby failing to achieve the expected results. It is the reality that decades of planned development failed to achieve the expected outcomes. Considering its magnitude, coverage and resources required for lifting the poor above the poverty line, it is felt that the government alone cannot take up this herculean task. It is in this context that partnership development, with the collaboration of non-Governmental agencies, has been emphasised. Decentralisation through 73rd Constitutional Amendment Act (CAA) has been providing congenial environment for public and private partnership to facilitate development at the cutting edge level. With the objective of promoting participatory development among the poor these agencies are promoting CBOs through **artificial** methods. This results in the proliferation of **Second Generation CBOs** among the poor.

Most of the CBOs thus formed through outside interventions among the poor lacked administrative and management capabilities to handle such organisations. This was mainly due to the fact that most of the CBOs formed among women were

largely illiterate or just literate. This is not to say that CBOs were exclusively formed among women. The males in such groups were no way better equipped as compared to the female counterparts. Many of them were for the first time coming out to manage such groups without any previous experience. Considering their low socio-economic status and level of education there was a need to enhance their capabilities by imparting training and awareness-building for the effective management and sustainable development of CBOs. The present paper tries to examine the need, approach and strategy for capacity-building of CBOs to enable its members, particularly the poor, to effectively participate in their own developmental programme for their sustainable development.

Emergence of Community-Based Organisations

CBOs are generally emerging in two different ways. They emerge either spontaneously or autonomously through local initiatives or promoted through an external effort. In the rural areas, CBOs have been proliferating with the objective of meeting the felt needs of the local communities. People who share a common experience or problem generally form them and their continued existence do not necessarily depend on outside initiatives or funding. Such organisations emerge due to different reasons.

According to Deepa (2000), people all over the world largely rely on CBOs for meeting their various needs. They are generally formed on the basis of indigenous identity based on caste, ethnicity, clan, gender, etc. Such organisations usually command confidence because people feel a sense of ownership of them and feel that such organisations are responsive to their priorities.

Pradhan (1999) who studied several community based organisations in Nepal, Pakistan and Bangladesh concluded that they emerged out of the community need and for village community development. These CBOs are self-governing, self-supporting and self-regulating institutions. The use of external fund utilisation is small among the CBOs. The mechanism instituted for internal resource Mobilisation from among the members themselves has contributed to make these CBOs self-sustaining and self-supporting institutions.

After examining the important characteristics of different such groups operating in the Indian villages, Venugopal *et al* (2003) came out with a working definition of CBO. According to them, the CBOs are organisations functioning at the hamlet level and they include Self-Help Groups, Village Education Committees, Watershed Committees, Vana Samrakshana Samithis, Water Users Associations, Mothers Committees, etc. In this list, one could add some of the co-operative societies, user groups, etc. All these organisations are pro-poor and they have ample potential to create an enabling environment that promotes people driven development.

Studies in the context of rural development have shown that the existing delivery mechanism, particularly the bureaucratic system, is neither pro-poor not effective in reaching the benefits of development to the poor, and in response to this the CBOs are emerging. For example, Choudhary (2000) in a paper has argued that the performance of government bureaucratic organisation, particularly formed for the implementation of rural development programmes at the grass-roots level, is not satisfactory due to their rigid structure, lack of staff, and lack of linkages with other agencies. Similarly, the performance of the Panchayati Raj bodies even after the enactment of the 73rd CAA is not in a position to perform the expected roles mainly due to inadequate devolution of powers and financial resources and low level of people's participation. In this context, he has contented that the poor performance of delivery system in distributive justice in certain activities resulted in evolution of community-based organisations below the level of village panchayat.

As mentioned earlier, after the enactment of the 73rd CAA, conducive atmosphere has been created for partnership development between the government and non-governmental developmental agencies. Such an environment has paved the way for the emergence of CBOs with the objective of promoting participatory development among them. In the changed environment, not only the government but also other agencies like NGOs and Financial Institutions have also engaged in promoting such groups leading to the mushrooming of CBOs. Here, the question that generally asked is whether these CBOs, particularly promoted by external agencies among the poor, have the required capacity and capability to achieve the objectives for which it has been formed. In the present study, we are concerned with the CBOs promoted by external agencies, as a number of studies is available on the emergence, structure and functions of CBOs that have come into being due to the local initiatives. (See Kumaran and Bidari 2004).

Need for Capacity Building of CBOs

By birth all have equal potentiality to acquire skills and knowledge. Depending on the environment in which a person is born and brought up the nature and type of capacity acquired by him/her varies. For example, children of educated and wealthy parents get better opportunities for quality education thereby upgrading their capacity to compete for a better job in the market, whereas children in the villages, whose parents are not educated may not get the same treatment as their counterparts born in a rich family. With minimum basic education or even without that the parents make their children to pursue their traditional family occupation. The skills required for undertaking such traditional occupation are acquired and transferred from generation to generation. Skill development takes place at an early childhood when he/she engages himself/herself as helper to their parents. People with poor socio-economic condition do not get any opportunity either to upgrade

their skill or to use modern technology to enhance their productivity for a better living.

The marginalised and disadvantaged sections of the society do possess skills and knowledge. For centuries, they have been undertaking various activities related to agriculture, animal husbandry, weaving, footwear making, and sustaining their daily life. But, the type of knowledge and skill possessed by them are traditional and localised. With the modernisation of societies, particularly with the development of science and technology, the productive sector has transformed and improved its efficiency. However, due to their low socio-economic conditions and low level of education, the poor have not been able to upgrade their skills and knowledge. In fact, with the advent of the new economic reforms, the traditional occupations are on the decline as they are not in a position to compete with the mechanised products.

Attempts were made by the Governments to improve skills and knowledge of the rural poor through various poverty alleviation programmes like DWCRA, IRDP, TRYSEM and SGSY, etc. These programmes were meant for imparting skill and knowledge for the effective management of income generating programmes for sustainable development. However, ineffective implementation of these programmes without giving much importance to training to enhance their capabilities could not achieve the desired results. Low Socio-economic status, lack of land, finance and education were other obstacles. Apart from this, the Socio-cultural factors including the political environment also acted as a barrier from acquiring the modern skills and knowledge.

Most of the CBOs promoted through outside interventions among the poor are riddled with many capacity constraints. Apart from shortage of funds they lack management and administrative capabilities, as most of them do not have any previous hands - on experience. Of late, the lion's shares of CBOs are formed among the disadvantaged sections of society, particularly among women. Many women who are hitherto engaged in managing their kitchen have ventured into managing the CBOs. Considering their low socio-economic status, including education, there is a need to enhance their capabilities through various means, including training and awareness-building for effective management.

Capacity Building

Before we examine the concept of capacity-building, it is necessary to understand the meaning of the term capacity. In simple terms, capacity may be defined as ability to perform certain functions in order to achieve certain objectives. Depending upon the degree of development, the nature and type of capacity prevailing may vary from society to society. For example, the type of capacity in a traditional society may be different as compared to an industrialised society where it is characterised by modern skill and scientific knowledge.

Although capacity-building is often used interchangeably with capacity development, there is a clear distinction between the two. Capacity development is a larger concept considered as a macro approach that emphasises the linkage between developmental activities and broader capacity needs in a society. In other words, capacity development includes efforts to both transform the macro level environment where institutions operate and reform the systems and the structure of institutions. Capacity-building, on the other hand, takes place mostly at the levels of institutions and projects. Therefore, capacity-building is crucial to wider capacity development (Angeles and Penny 2000).

The important need for capacity-building is to equip and enhance the capabilities of people to solve their problems through organised efforts. Capacity-building can be attempted in two ways. It can be done by bringing out the hidden wisdom and knowledge of the poor and upgrade it to the required level and use it for their own development. The other way of doing it is by imparting modern knowledge and skill through training and other methods. Through capacity-building it is possible to bring about organisational expertise in rural communities, particularly in areas related to leadership and decision-making and managerial capabilities. In the present paper, capacity-building has been defined as increasing ability of the people and institutions to do what is required of them. The ultimate goal of capacity-building is to achieve empowerment of marginalised and depressed groups of people to effectively manage their affairs, thereby reducing dependency on the government.

Capacity-building is a continuous learning process and it should be in relation to the objective and goal of the organisation. The process covers a wide area of organisational management and development such as leadership, decision-making capability, human resource development, financial management, administrative and technical capabilities, etc. To achieve this wide gamut of development, capacity-building should not be restricted to conventional training but should be strengthened through other related methods as well. Here, we have identified three approaches, viz., Social Mobilisation, Training and Participatory Methods that may enhance the capacity of CBOs. Let us examine each one of them in detail.

Approaches to Capacity Building

Social Mobilisation: Social Mobilisation is considered as an important approach that facilitates capacity-building of the disadvantaged section of the society. For quite some time, the use of the concept has been limited to creating awareness by mobilizing the people into groups. The mass literacy campaign and health related programmes, including immunisation programmes, are examples of this. However, since the early and mid-nineties, the base of the concept has been further broadened and increasingly used in the context of participatory development where the poor

people take active role in planning and implementation of development programmes. The basic underlying principle of the concept of social Mobilisation is that the poor are efficient and capable of taking decisions that affect their lives. Therefore, if they are properly mobilised and organised into viable groups they will be capable of addressing their socio-economic problems with limited interventions from outside.

Social Mobilisation has been defined in different ways depending on the need and situation. According to Rana (2001), it is a process of enabling the poor, marginalised and disfranchised segments of society to build and manage their own organisations and thereby participate in decisions affecting their day-to-day lives through the use of their own creativity. According to Parr (2002), it is a process that empowers women and men to organise their own democratically self-governing groups or community organisations which enable them to initiate and control their own personal and communal development as opposed to mere participation in an initiative designed by the government or an external organisation.

For the poor and marginalised section of the society, social Mobilisation for capacity-building in order to achieve participatory development involves the following stages: (1) awareness building; (2) formation of poor into groups; (3) identification of factors contributing to the problem they are facing; and (4) taking up of collective action for their sustainable development. This shows that social Mobilisation goes beyond community organisation and harnesses the potential to work toward sustainable social and economic development through self-development.

Social mobilisation process is not a spontaneous one. The process is activated by an external agency with the help of duel role, namely, Animation and Facilitation. The process of animation helps the poor to raise their level of consciousness and intellectual capacity to motivate them to investigate the reality of their life situation, factors leading to their poverty, their deprivation and backwardness. Thus, animation is a sort of process creating awareness through conscientisation. However, animation is a necessary but not a sufficient condition to enable the poor to undertake and manage development actions to transform their socio-economic conditions. Given the lack of experience in undertaking self-initiative for change, an external input in the form of facilitation is often required to assist the poor to initiate actions for changing their conditions. All this shows that animation helps in breaking the mental barrier while facilitation is an attempt at assisting the poor to overcome practical barriers to action. Both the processes help the poor to bring out their hidden potential, including skill and wisdom, thereby empowering them to work for their development (Wignaraja 2000).

During the last one decade or so, in India as well as in many developing countries, social mobilisation process has been used for mobilising the poor, particularly women, into SHGs. The result, the poor women got a platform to realise their hidden potentialities and wisdom and use it for their socio-economic

development. This process not only enlightened the disempowered but also helped them to achieve dignity and better living condition through personal development. Thus, the process of social mobilisation can serve as an effective tool for enhancing the capabilities of marginalised and weaker sections of society and help them collectively to fight against various obstacles or barriers that stand on their way to development.

Training: Access to knowledge and skills are very essential, particularly for the poor and the disadvantaged, to make them participate in their own development. It is possible to impart skill and knowledge through training. In addition to this, through training it is also possible to change the mindset of people to think more in a positive and rational way. Some of the CBOs generally consider classroom training as a dominant method of enhancing the capacities of its members mainly using methods like lecture, demonstration and discussion. But training has its own limitations as it is time consuming and expensive. Due to this reason, for capacity-building, apart from conventional mode, some of the CBOs depend on other modes of training such as exposure visit and learning by doing.

In a study (Kumaran 2003) to assess the capacity-building of CBOs, particularly SHGs formed by poor women, it has been found that different modes of training have been used. Under the classroom mode, skill development and vocational trainings, with provision for interaction and discussions have been provided. The study has shown that for the poor women, who are either illiterate or literate, exposure visit was found to be a very effective way of learning as compared to classroom training. Here, the newly formed SHG members were taken to a mature SHG working in a neighbouring area or district and they were allowed to interact with the mature group members. The interaction was very smooth and the learning process was very fast, as the situation did not demand the trainer and trainee differentiation and discussion was held between them without any barrier. In such mode, the time taken for learning was less and the cost involved was relatively less as compared to classroom training.

Similarly, learning by doing method has been followed by some of the leading NGOs like PRIYA, Pradhan and SEWA. Here, the poor women were allowed to run their own economic activities. In that process they became very strong, confident and articulate, and their hidden potential, and even development, got bloomed. Rather than by mere classroom learning or theoretical discussion, they were involved in day-to-day implementation themselves in problem solving and developing vision and direction for their own economic activities. This method not only enhanced the confidence of the entrepreneurs but also brought out the hidden administrative and managerial capabilities of women.

Classroom training, of course, is a very effective method of imparting knowledge and skill. But, it has got its own limitation as it is time-consuming and

expensive. From the above discussion it may be inferred that for the poor and the disadvantaged, methods like exposure visit and learning by doing are more effective as compared to class room mode of training. While selecting such components both the task on hand and the people to be trained may be taken into consideration.

Participatory Methods: Generally, participation may be categorised into two types, viz., direct and indirect. Indirect participation is effected though the representatives elected or selected. Participation of the poor in any project or programme becomes effective only when it is direct. In a larger group, direct participation of marginalised section of the Society is very difficult. Therefore, small groups like SHG have been proved to be very handy for the poor to participate effectively. Implementation of poverty alleviation programmes has shown that capacities of stakeholders cannot be built or developed without their genuine participation in decision-making. There are different methods that facilitate enhancement of the capacity of the rural poor for their effective participation in their own development programmes.

Participatory, Rural Appraisal (PRA) is considered as one of the effective methods for enlisting participation, particularly of the poor in development activities. PRA emerged in the late 80s and this approach is based on certain refinement made in the Rapid Rural Appraisal (RRA). PRA has been described as a family of approaches, methods and behaviours to enable people to express and analyse the realities of their lives and conditions them to plan, monitor and evaluate their actions. The objective of PRA is aimed at the empowerment of local community members to enable them to actively involve in development activities, by seeking their views, knowledge perceptions, contributions and experience (Chambers 1994).

Under PRA, various tools are used to enable the people to participate in the implementation of various developmental programmes. These tools help them to explore their problems by making use of their collective wisdom. The PRA exercises are generally done through facilitation where the poor get an opportunity to analyse and identify their own problems and find solution with minimum external interference. Some of the important participatory tools used under the PRA are the following - Mapping, Transect walk, Seasonality, Time line, Matrix ranking and Venn diagram. The locally available tools used in PRA exercise help the villagers to play a bigger role in gathering information pertaining their development, analyzing them and identify necessary interventions to overcome the problems. The exercises and discussion initiated with the help of these tools empowers the community and provides them with an opportunity to take action in solving their own problems rather than depending on outside interventions. PRA exercise has given an opportunity to the poor people to come out with their traditional knowledge and wisdom and use it for their own development. In addition, by participating in such exercises the communication abilities of the people get a boost.

Strategy for Capacity-Building in CBOs

We have earlier seen that CBOs are mostly formed among marginalised and disadvantaged sections of the society who lacked leadership qualities and organisational capabilities. Capacity-building of CBOs is attempted with a view to achieving the felt need for which the group has been formed. Therefore, the strategy for capacity-building ought to be stressed taking into account the needs and hands-on experience of the stakeholder. In particular, the strategy for capacity-building of CBO may involve two stages. The first one aimes at promoting social development of the stakeholders and the second emphasises on personal development. The first stage involves awareness creation through conscientisation for social development. The animator who actually mobilises the poor through the process of social Mobilisation will be able to raise the consciousness and make them understand the reality surrounding them. Awareness building through consientisation is very important in the Indian villages, particularly among women, where the literacy rate is alarmingly low. Once certain level of consciousness, which facilitate positive thinking, is reached, attempt may be made to bring out the hidden wisdom and knowledge of the stakeholders through PRA. PRA exercises have proved to be helpful to bring out such valuable information from the stakeholders and use it for their own self-development. Their involvement in PRA to a certain extent may also help them improve their communication abilities as well.

Once the required level of social development is achieved, the second stage of capacity-building may be initiated. The second stage involves promotion of skill and knowledge and attitudinal change through training for the proper management of the group. The training methods may be further substantiated with other components like exposure visit and learning by doing depending on the task on hand. The second stage equips the stakeholders to initiate and perform certain action, including economic activities, for their sustainable development. Capacity-building if attempted following the above mentioned stages not only would promote social development among the stakeholders but also would enable them to manage the affairs of the group smoothly for their sustainable development.

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Book Reviews

Satu Kahkonen and Anthony Lanyi (eds). *Institutions, Incentives and Economic Reforms in India.* **New Delhi: Sage Publications. 2000. Pp. 516. Rs. 595. (Hardback); and**
John Degnbol – Martinussen. *Policies, Institutions and Industrial Development: Coping with Liberalisation and International Competition in India.* **New Delhi: Sage Publications. 2000. Pp. 260. Rs. 475. (Hardback).**

Institutions in a society can be conceived as the formal and informal rules that regulate or control the behavior of members of a society as they take part in political, social and economic activities. There are a number of formal as well as informal rules that govern a society and these rules vary considerably across societies. Formal rules include laws and regulations as interpreted and imposed by the political authority. 'Informal rules' are the shared beliefs about acceptable and unacceptable behavior enforced by conscience, a result of socialisation, based upon the actual and expected reactions of other members of the society' (Shaffer,1995). Thus, institutional structure can be considered as the basic underlying structure that shapes the development process.

Given this milieu, success and failure of any policy of development or reform need to be looked at with the embedded institutional structure. A right policy may not give the perceived effect mainly due to specificity of the prevailing institutional structure in society. In economic theory, the (new) endogenous growth theory literature propagates that growth and development depend entirely on natural and human resources and their capacity to innovate. However, currently there is a shift in thinking and the role of institutional structure emerges.

Highlighting the role of institutions in the context of reform policies initiated in India, the edited book by Satu Kahkonen and Anthony Lanyi, titled 'Institutions, incentives and economic reforms in India', looks at institutional structures and their role in making reforms successful. While this book touches upon different sectors of Indian economy and polity, another book authored by John Degnbol – Martinussen is more focused on the role of institutions in industrial development of India. Undoubtedly, both the books are valuable contributions to reforms related literature.

The book, edited by Kahkonen and Lanyi, is divided in five parts. The first part examines the political economy of reforms. In this part there are four papers, each one looking at political economy linked issues relating to different areas, e.g. a paper by Kenneth Kletzer and Nirvikar Singh examines Indian Fiscal Federalism, while Anand Gupta looks at the public enterprise reform programme of the Indian

government. Privatisation of power and banking sectors are studied by L E Armijo and P S Jha. The electoral system forms the base of political economy which is taken up in detail in Bhaskar Dutta's paper and is devoted to fiscal reforms in India. Tax being the major source of government income to carry out any programme, tax reform policies are evaluated in two papers both by A. Dasgupta and D Mookherjee. Given the poor fiscal health of the state governments of India, M Govinda Rao examines the Indian fiscal problem from the point of view of states' expenditure and revenue policies.

Part III consists of two papers devoted to the important issue of public goods delivery. The first paper by Anil B Deolalikar and Prem S Vasistha looks at the delivery of health care services, while Mukesh Agarwal provides models of fertility and decisions to educate a child in Indian society. Part IV is concerned with agriculture related institutions like the Food Corporation of India (by Askok Gulati, Satu Kahkonen and Pradeep Sharma) and the Cotton Cooperation (by Ashok Gulati and Sangeeta Shroff). On the rural political fabric, Chandrika Gulati looks at the panchayati raj governance system in India. Part V pertains to financial and industrial sector reforms, where financial sector regulations and reform measures are analysed by Pradeep Agarwal, and the labour market, as a social institution, and its reforms are considered in two separate papers-one by Mrinal Datta Chjowdhuri and the other by Pradeep Agarwal.

The first paper of the volume by Kenneth Kletzer and Nirvikar Singh on fiscal federalism is an insightful one. Through a simple and elegant model, it explains how the optimisation of political objectives influences the provision of public goods by different levels of governments in an Indian setting. This model, however, does not explicitly bring in reform policies while determining the effect of an optimal behaviour among political entities, for example, what happens under public private partnership? The paper by Bhaskar Dutta looks at the relation between an unstable coalition government and certain fiscal indicators like revenue expenditure, own tax revenue, etc through a regression model and compares states like Bihar and U.P. However, whether regression equations should have incorporated other relevant variables are not explained. It is well known that if a regression equation is under-specified, estimated coefficients may be biased. Furthermore, how would such an unstable political institution affect the reforms process? The short but insightful paper by M Govinda Rao delves in to how low per capita expenditure on social and economic infrastructure in low income states further enhances inequality. This can be attributed to the failure of inter-governmental transfer mechanism. Another paper by Ashok Gulati and Sangeeta Shroff though deals with a small sub-sector of the economy, viz., cotton, highlights the institutional framework and impact of reforms on that sector.

Through the book explains quite clearly the role of certain institutions in the economic framework, their linkage to economic reforms, is rather hazy. Moreover,

it seems like one title and themes of the book are chosen to accommodate a disparate array of topics. As a result, it appears to be a collection of papers with diverse themes under a convenient title. On the other hand, the book by Martinussen is more focused and brings out clearly the role of institutions in reforms measures.

While the first book does not do full justice to the industrial sector, which in fact gets directly effected by economic reforms, the book by J D Martinussen is devoted exclusively to the institutional framework, reforms and the industrial sector in India. According to Martinussen, an institutional approach would suggest how strategies to develop the industrial sector are shaped by the institutional framework.

Social Sciences literature on developing nations generally considers the state as the foremost institutional set-up for development. However, with reforms measures on their way, markets also become a significant institution. In this context, inherent organisational structure of a firm becomes important as well since its strategies need not exclusively be market determined but are also based on its internal organisational structure. Moreover, national and international economic, political and social constraints and pressure influence strategy formulation as well. The author, here endeavours to examine these issues in some detail. The method of research followed by the author is discussion with key decision makers in India on policy formulation and implementation and how these have been perceived by those involved in making investment decisions.

While Part I of the book is devoted to general discussions of state, market and firm in the context of new institutional economics, Part II considers at length state intervention and control from 1951 till 1990, and issues like India's self reliance policies, import substitution measures and so on.

Part III discusses policies, institutions and industrial development in the 1990s, like how recommendations concerning policy reforms paid little attention to the organisational capabilities and capacities for implementing new policies, and IMF prescriptions tended to disregard the institutional context and power relations that shape the behaviour of government officials as well as investors and other players. The author pinpoints different aspects of the Indian system that does not corroborate a free market economy like the limited right to exit from the market, interference with free movement of capital, etc. However, the important question that remains is whether India desires to move completely to a free market economy. Competitive market is no panacea, neither is Pareto optimality. Many of the Latin American countries that went ahead with a structural reform programme, have seen increase in income inequality and regional disparity (Taylor (2002)). In India too the fall of the BJP-led government during the last election was attributed to failure of the trickle down effect and poor growth of rural India.

While the book discusses India's industrial policies in great detail, a state (province) level analysis would have been more insightful in this context. After liberalisation different states in India are taking their own initiatives for industrial

development, attracting FDI and so on. Institutional framework and labour policies also differ from state to state.

The book also provides limited empirical evidence. Theoretical arguments need to be justified appropriately with empirical support. The question remains whether removing some of the institutional constraints would have made India a better performer on the industrial front.

An important issue, which is closely related to industrial economics, pertains to labour market reforms, which is not appropriately focused in the book. It has been often argued that liberalisation led to more casualisation of labour leading to excessive vulnerability of the labour class (see Table1).

Table:1 Distributions of Workers (Usual Status) by Category of Employment (per cent)

Year	Self Employed	Regular Salaried	Casual
1977-78	59.9	13.9	27.2
1987-88	56.0	14.4	29.6
1993-94	54.8	13.2	32.0
1999-00	52.9	13.9	33.2

Source: Deshpande et al, 2004[1]

In the absence of social security benefits for labour, how do we handle the effect of free exit of enterprises? If social security needs to be arranged, how do we generate resource for the same and keep fiscal deficit under control? These are some of the essential questions that remain unanswered.

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M A Oomen (ed). *Kerala's Development Experience (2 volumes).* **New Delhi: Concept Publishing Company. Pp. x + 521. Rs. 900.**

The 'Kerala model', while praised by many in the 1980s and 1990s, also came under considerable scrutiny by those who felt it was not sustainable. Well into the 21st century, such criticisms might seem somewhat 'outdated' given Kerala's significant growth and the state's apparent response to criticisms that development without growth would eventually fizzle out. Yet, there are a number of other critiques of Kerala's development that remain as valid today as ever before. A review of *Kerala's Development Experience*, a very wide ranging book in terms of issues covered, edited by M.A. Oomen and published in 1999, is one way of raising pertinent issues about development in Kerala, in particular, and such models of development, more generally, that were important then (in 1999) and even now.

Kerala's Development Experience was one of many assessments of the Kerala model that emerged in the 1990s to take stock of a 'model' of development that had been hailed by many due to its significant achievements in human development despite relatively low growth rates. The book was the product of the International Conference on Kerala Development Experience held in 1996 that itself was a follow-up to the International Congress on Kerala Studies organised by the A.K. Gopalan Centre for Research and Studies, Thiruvananthapuram, in 1994. As the editor states, the main aim of the conference and the book was to highlight (1) what contributed to the shaping of the Kerala model, (2) what should be sustained in the model, (3) the problems faced by the Kerala model, and (4) why economic growth was not a part of it.

The articles in the book are extremely diverse but can be broadly classified into three types depending on what they are aimed at, (1) offering an overall review/ critique of the Kerala model, (2) assessing particular sectoral concerns, and (3) providing a historical and cultural context for Kerala's development experience. It

should be pointed out, however, that the articles are not organised sequentially according to these three types. As a result, the chapter scheme of the book is random in nature making reading difficult at times. Nonetheless, there are some interesting pieces in the book that continue to be relevant today.

The central question the book poses is whether the Kerala experience constitutes a model at all and, if so, what are its outcomes and the reasons for it. The introduction makes it clear that the editor feels that Kerala's development experience has been a success of sorts. Few would deny the fact that Kerala has made significant strides in terms of health and education indicators. Articles by Franke and Chasin and Irudaya Rajan and Zachariah, amongst others, highlight the excellent material quality of life indicators that Kerala demonstrates in terms of low infant mortality and morbidity rates, high literacy rates, etc. Franke and Chasin also point out how struggles for redistribution of wealth have been central to these achievements. A number of other authors (such as Varghese, Gasper and Sebastian) speak about the significant investment that has gone into the social sectors.

These articles on Kerala's achievements are complemented by a number of write ups articles that directly or indirectly suggest that Kerala's unique history accounts for these achievements. M.G.S. Narayanan's article 'Gods and Ancestors in Development' talks of Kerala's rich history of commerce and trade with other parts of the world and how that has been central to the state's development both in the past and present. Gurukkal details Kerala's encounter with colonial modernity and its impact on shaping new subject positions and the social content of Kerala's development. A number of articles highlight Kerala's literary traditions. It is important to point out, however, that Kerala's historical experience varied significantly between the princely states of Travancore and Cochin and the areas of Malabar which fell into the Madras Presidency. In other words, while many of the human development achievements of the former princely states can be attributed to the emphasis on education in the pre-independence era, there is no escaping the fact that much of the success in other areas of the state were due to state policies in the post-independence period.

An equally important question pondered by some authors in the book is whether or not these achievements are sustainable in the long-run. C.T. Kurien sounds the warning bou soying Kerala's development experience should not be called a model at all given the unique historical experience of the state and the enabling factors for its 'success', most notably foreign remittances and the provision of foodgrains at concessional prices by the Centre that helped the state overcome its relatively poor agricultural production. Tharamangalam takes an even more and critical stand arguing that Kerala has not managed even a minimum degree of economic development. He blames this on the disruptive politics of unions, excessive state patronage and the stifling of institutions of civil society and private enterprise.

While Tharamangalam is right in pointing out the limits to growth, is it not possible to argue that Kerala made choices that were not necessarily aimed at growth – after all there are other ways to achieve economic development.

The increasing liberalisation of the Kerala economy and consequent growth rates can be seen either as a response to Tharamangalam's concerns, on the one hand, or an indication that Kerala has accepted more hegemonic discourses of growth-led development, on the other hand. Wherever one chooses to position oneself in terms of Kerala's new focus on growth-led development, it is important to point out that a number of problems remain even after growth has sped up. For example, although there has been a structural transformation of employment away from agriculture, the employment transition has not led to a significant increase in employment opportunities in the organised sector – hence it raises questions to be asked about the quality of employment. Even within agriculture, there are indications that employment is increasingly generally casual in nature. Moreover, high rates of unemployment (or under employment) remain the norm. And, of course, questions about labour productivity remain. Several other concerns raised in the book remain important for Kerala's future: social security for an ageing population, better quality education to complement the high literacy rates, the need for reforms in the health sector and even concerns around coastal zone regulations and energy generation. Moreover, there are groups who have been excluded from the achievements of the state, most notably SC, ST and fisherfolk. Even on the gender front, despite good indicators with regard to female literacy, concerns remain about women's status (Velayudhan) with the incidence of eve-teasing, dowry and even suicide being significant. The question therefore, is what the impact of growthled development in its current form is on social indicators. Put another way, are there tradeoffs between opening up the economy and stimulating growth and social concerns?

Whether or not Kerala's experiment in democratic decentralisation offers as much hope as Thomas Isaac and Harilal claim also remains to be seen. Efforts are being made to give priority to the voices of the marginalised but whether this translates into practice, given the compulsions of economic growth and liberalisation, is not clear as yet. Recent developments with regard to land alienation of adivasis (tribals) is indeed worrying but it does not seem to be a priority of the state government. As K.T. Rammohan pointed out in an article published in EPW in 2000, entitled 'Assessing Reassessment of Kerala Model', most of the literature on Kerala (including this book) is embedded in a discourse of development that sees success and failure largely in terms of developmental efficacy as defined by hegemonic discourses of development. One wonders, while trying to rectify the problems of Kerala's model of development by adopting currently well-accepted paths of development that are growth-driven, whether one is straight-jacketing Kerala's achievements in ways that were never intended? Are there other ways in which

Kerala can address the shortcomings of its development experience that do not speak the language of liberalisation? Such questions remain unanswered in much of the writing on the Kerala economy.

Finally, the book, while being useful as a benchmark to examine Kerala's development experience, could have been both organised and edited better. While the stated intention of the editor was to examine the Kerala model and its achievements and limits, the contents of the book are not arranged in a reader friendly manner. Moreover, while some articles are very analytical (as articles should be), many other articles are largely descriptive or simply a list of policy recommendations that emerge from thin air. Attention should have been given to tie the articles together in a more coherent manner.

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Takashi Shinoda (ed). *The Other Gujarat: Social Transformations Among Weaker Sections.* **Mumbai: Popular Prakashan Pvt. Ltd. 2002. Pp. xxxii + 425. Rs. 450; and**
Ghanshyam Shah, Mario Rutten and Hein Streefkerk (eds). *Development and Deprivation in Gujarat: In Honour of Jan Breman.* **New Delhi: Sage Publications. 2002. Pp. 345. Rs. 580.**

The two books under review precede the two major events that shook Gujarat. The massive earthquake that killed thousands and made innumerable others homeless had a serious implication on the livelihood of the communities, particularly from Kachcha and Central Gujarat. As if this natural disaster was not enough, another human induced carnage created fear and havoc in Gujarat society, whose social and livelihood implications need serious academic enquiry. Both these books are also pertinent in that they provide a base and rich analysis on some of the lesser-spoken issues about Gujarat.

The macroeconomic indicators show a paradoxical development process in Gujarat that poses a challenge for academic communities. The impressive growth rate in economic indicators like SDP, infrastructure, industry, credit disbursement and employment is accompanied by the sorry state of development in education, health, sex-ratio, informalisation of labour and environmental indicators. This draws a pertinent question: whether the impressive figures of economic growth are inclusive of different social strata? In other words, whether the weaker sections and minorities have benefited from the economic growth or, has the development process by

passed them. On these issues, the research papers in both these books make valuable contributions.

The first book, aptly titled "The Other Gujarat", looks into the status of backward classes, the process of polarisation and women's issues in 15 articles. These sections are preceded by an elaborate introduction by the editor. Meheta's article on the Dalit temple entry movement is an interesting illustration and unveils the distinct perception of Gandhi and Ambedkar on the issues of 'untouchability' and 'the caste system' in pre-independence Maharashtra and Gujarat. According to the author, Gandhi believed that if untouchability was abolished, the caste system would wither away, whereas Ambedkar maintained that untouchability would not be abolished if the caste system remained. However, what is more interesting in the paper is the inherent dichotomy in Gujarat society that is stated with the illustration of the Swaminarayana temple in Ahmedabad. Yagnik explores Dalit identity in Gujarat society and explains how the dalit quest for identity has taken various forms, and often antagonistic, in the political, social and religious context. As a result, the dalit voice in society has not helped strengthen its position. Seth takes a different approach, and looks at the social transformation process from a spiritual approach, the Swadhya movement. This movement, initiated by Pandurang Shastri Athavale, has made deep inroads in to Gujarat society. Seth argues that this spiritual process, which is based on non-violent and altruist has assimilated people of different social groups, including Scheduled Castes and Scheduled Tribes into one family.

The next few papers in this section deal with contemporary issues on legal and institutional development relating to sweepers in Ahmedabad, unrest among Adivasis, resettlement and rehabilitation in the Sardar Sarovar project and seasonal migration issues in Gujarat. Sinoda's paper gives an account of rising assertion in identity among sweepers of the Ahmedabad Municipal Corporation that led to betterment of their socio-economic conditions. Ghanshyam Shah's paper on unrest among Adivasis and their struggle presents a vivid picture of the tribal movement in the districts of South Gujarat. It gives an account of the distinct characteristics of the CPI (ML)-led movement in Dang district, that is different from that of Bharuch. Iyengar's paper on Sardar Sarovar details the policy and implementation dimensions of the rehabilitation and resettlement programmes relating to the population (to be) ousted due to the dam project. However, this chapter seems to be inelegantly put in this section. The title of the seasonal migration paper of Gumber's paper is misleading until one finds out that it is based on a sample study of those ousted due to the Panam Irrigation Dam in Panchmahal district. Given this background, the entire perspective on pattern, determinants and consequences have to be reassessed on the basis of dam ousted and not migration. The author's treatment too fails to capture this aspect in a somewhat lengthy paper.

The second part of the book that deals with the Process of Polarisation has five papers. More than the 'process of polarisation', the commonality of the papers can be traced in their dealing with activities outside agriculture. It is heartening to find a paper on urbanisation, development and communalisation of society in Gujarat, specifically much before the post-Godhra carnage. This paper provides a synoptic view of the gradual political movement towards communalisation of society in urban Gujarat. At the root of such changes is the weakening of the bargaining power of working communities and reduction of their livelihood options due to the collapse of textile industries. The striking division of factory workers in Ahmedabad is empirically examined by Junko Kiso. She finds that most contract workers belong to lower caste group with limited or no education, whereas, clerical and technical jobs are largely with upper castes with better education facilities. There is an even distribution of castes in production work. Such a study is meaningful in the context of the present up roar over reservation policies. Mario Rutten gives a similar impression in rural central Gujarat society where the division between the rural elite and the poor is deep rooted in the region's history. This study, while based on close observations of attitude and behaviour, derives its empirical justifications from Tsuguo Nakasato's study on occupational diversification in a multi-caste village. Amita Shah's paper on "Changing Pattern of Rural Artisans in Gujarat" encompasses macro and micro level scenarios. She finds that over a time there is has been a shift in the pattern of rural artisans from household to non-household sector, and from rural to urban markets. However, she is sceptical whether the workforce released from the household can be absorbed in the non-household sectors. She makes a pertinent suggestion on strengthening the integration of traditional artisan-based activities with mainstream industrial production that can provide better wages and absorb more workers.

Another aspect of the "Other Gujarat" society is its dogmatic position on women. I wish there were papers presenting the role of women in Gujarat society since the Gandhian era. In fact, Gujarat perhaps is one of the leading states where women's participation in the freedom moment was overwhelming. Through similar ethos continued in the post-independence era, the contrast and irony in terms of the adverse sex-ratio, lack of education and health push the state into a socially backward position. Hirway and Mahadevia's paper with an alternative index of women development empirically shows some of these darker sides of women's status in Gujarat. Unni, in her article comparing the employment status of women in normal and drought years, finds that more women work in drought years to supplement the family income. Even in normal years women have better diversity of work as compared to men, though their intensity is low. A somewhat disarrayed paper on an interesting aspect of women's life relating to widow remarriage Bhagat-Ganguly and Shodhan show how there have not been enough inroads in this regard in spite of several movements in Gujarat.

The books "Other Gujarat", though justifies its title by the sheer assembly of papers on relevant issues, lacks focus on its treatment of articles, which would have made it a better book.

What the "Other Gujarat" could not deliver, the "Development and Deprivation in Gujarat" did meticulously, in graceful honour of Jan Breman. Breman, who studied Gujarat for more than four decade, could very well identify the polarisation in society along economic, social and communal lines. His enquiry was among the bottom end of this polarised society, as eloquently said by Ghanashyam Shah and Mari Rutten. This book that has been divided into four sections, contains 16 articles in four sections. The introductory section of three articles deals with the polarisation and paradoxical growth process in Gujarat in terms of economy and polity. Five papers in the second section show labour relations in different perspectives. Alienation, encroachment and assertions form the third section of the book with five papers, and migration issues are dealt with in the last section in three papers. That way, this book is aptly in honour of Professor Jan Breman, who has deeply studied these aspects in Gujarat society. Indira Hirway and Piet Terhal bring out the contradictions in the growth pattern in Gujarat due to high industrial growth and where agriculture has very little to offer in the states performance. In fact, the irony is that there is very little interrelation between these two sectors. Even the significant economic growth has bypassed the social sectors that put Gujarat poorly in terms of the Human Development Index. The growth of polity in Gujarat with an arrogant demonstration of authoritarianism with elements of male Hindutva bravado is not unknown to the world since the Post-Godhra carnage. Parita Mukta shows in her paper how these elements have been prevalent since the pre-independence era such elements had been traced in the polity of Sardar Patel and K M Munshi. The dogmatic position of Gujarat society reflects well even where Gandhi's values on liberal, tolerant and non-violent means were experimented.

The chapters on labour relation are largely based on south Gujarat, and a little on the Ahmedabad experience. However, these chapters offer a wide perspective on capitalist growth and strong polarisation in Gujarat society where the labour class is at the receiving end. Hayens' observation regarding artisans and the shaping of labour in south Gujarat is based on a periodic study of more than 350 years. During this period, Hayens discovers how artisans were replaced by industrial workers (largely from outside) in the process of change from mercantile trade to factory dominated industrial production. Sujata Patel, based on a study of on the Ahmedabad textile industry, shows how corporate patronage during colonial times and the nationalist movement period diluted production and class relations that led to displacement, overwork, lower wages and the capitalist mode of discipline among workers. Labour relations in agriculture have even stronger polarisation than in industry, and its impact on landless communities, including women, is much more

striking than any other. Uma Kothari brings out this aspect in her study involving Halpati women in south Gujarat. Streefkerk shows the casualisation of industrial workers and the role of labour contractors in the process of identifying the changes in south Gujarat. In the early '70s, where rest of India was experiencing consolidation of workers through trade unions in asserting their rights, in south Gujarat it was a process of casualisation, a concept initiated much before liberalisation. What has been the fate of these people, being made victims of casualisation? This aspect is dealt in Kiran Desai's "searching for space". In an enquiry into the economic and social aspects, Desai brings forth the misery of these people.

In a polarised society, even if sparse, voices of dissent are bound to be heard. It may take peculiar forms of expressions, depending upon social, cultural and livelihood dependency, etc. Apart from the violent communal character that Gujarat society in infected with time and again, there are a few dissents among the Advasis of south Gujarat, the Dangs and Dalits. These issues are reflected in a few papers. Hardiman, in his paper, attempted to understand the nature and development of Christianity among the Adivasis in Gujarat since the colonial period. He highlights a series of oppositions among the elites and Bhagat tribes against conversion. At the same time, contradictions in the views of Hindu rights are identified depicting the evangelical missionaries as the agents of western imperialism and not being western enough. Satykam Joshi depicts the struggle among the Dang tribals in the early 1990s essentially to regain their legitimate rights over land. Stany Pinto draws a similar picture after studying the development of *Gujarat Adijati Vikash Pakash (GAVP)* mostly in Bharuch district. But how far it will succeed in bringing adivasis together in their fight for self-assertion is a big question due to the cultural, ethnic and religious diversity among them. Atrocities against Dalits are different from that of tribes, as in the first case, the question of 'self' dignity is involved which is intertwined in the caste systems in a complex manner. Harshad Desai and Chandu Maheria bring out the Dalit assertion of self-esteem with a vivid description of the Dalits of Swamnagar village, who moved to their village by undertaking *hijarat* i.e. en masse migration. The last article in this section by Shalini Randeria though somewhat different, definitely presents a strong understanding of the process of polarisation in the environmental context. With globalisation setting in, Gujarat took the leading role. However, the state failed to address the concerns relating to the pastoral[1] communities who are heavily dependent on Common Pool Land Resources (CPLRs) for their livelihood. With the consolidation of natural resources in the state's interest, the livelihood strategies of these communities were virtually ignored, further pushing them to deprivation in the polarisation process. The other

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[1] Gujarat has a very high proportion of pastoral communities compared to any other state of Indian Union. Maldhari, Rabari, Charan, Bharwad, Makrani and Siddis are the major pastoral communities.

victims of the state's monopolisation of natural resources are the displaced communities of major dam projects, including Sardar Sarovar in Narmada River. Randeria elegantly brings out these issues in her paper.

The fourth section of the book addresses migration issues. Amita Shah, using the census data, looks into the pattern of migration in Gujarat. Though intra-district rural-rural migration has been the single largest stream of migration, since the, '80s there has been a shift toward rural-urban migration. Such migrations, often linked to push factors, invariably carry negative implications in terms of depressing wage deals in the agricultural sector and informalisation of labour in the industrial sector. With a planned investment in the farm economy, she suggests, such negative implications can be reduced. Mirinda Engelshoven, in her paper identifies the significance of caste in rural-urban migration. With the case of *Kanbi Patels*, she illustrates, how a poor community has put its stronghold in Surat, known for its dimond*walas* or Saurashtra Patels, all due to the unity within the community. Mario Rutten and Pravin J Patel bring out the interesting aspects of *Patidar* Diaspora, who have migrated from central Gujarat to East Africa to Britain. In the process, the authors unveil how the links of this community with the natives were strong when they were in East Africa, and weakened when they migrated to London.

The book ends with a compilation of Jan Breman's bibliography which is as vivid and versatile as his personality. Reading both the books one cannot help but tend to bring in a comparison between them. "The Other Gujarat" is untidy, disarrayed, empirically strong but lacks perspective. On the other hand, "Development and Deprivation in Gujarat" is a meticulously structured and edited book. The depth of understanding, perspective and illustrations make the book worth reading.

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G V Joshi, P A Rego and Siman M. *Banking for Rural Development in India: Progress, Problems and Prospects.* Pp. 324. Rs. 400.

For economic development, the role of the banking sector centres around money market intermediaries. Recent evidence on shows cross economy that the average level of financial development is strongly correlated with the average rate of per capita income growth, both before and after controlling initial conditions. Hence, both developed and developing countries felt the need to develop and integrate the banking system into the economy to meet national objectives. In a developing country like India, where the capital market is not fully developed,

banks play an important role in mobilising the essential capital for investment and, thus, helping in economic development. At the time of independence, India had a relatively weak economic base and financial structure. Savings and investment were relatively low and only two-third of the economy was monetised (Luma 1990). At the beginning of the last decade the Indian economy faced a major crisis, with double digit inflation figures, huge fiscal deficits, foreign debt and a lowering exchange rate. To overcome this crisis, the Government of India wanted to introduce a new economic policy (NEP). As part of NEP, the Government wanted to bring reforms in financial sectors. The Government of India, therefore, set up the Committee on Financial System (CFS 1991), under the chairmanship of Mr Narasimham, to examine all aspects relating to the structure, organisation, functions and procedures of the financial sector, including the banking system. In December 1997, under his chairmanship, a committee was constituted to review the progress made in the implementation of the CFS 1991 recommendations. The committee had covered all the recommendations regarding banking, of which the majority concerned rural financial institutions (RFI). Subsequently, the Gupta and Kapur committee was constituted to examine exclusively the delivery of quality credit to agriculture and small-scale industries, respectively. The Gupta committee suggested measures to simplify procedures for agricultural credit and to identify the constraints faced by commercial banks in increasing the flow of credit.

The reforms in the banking sector, have been a subject of debate and documentation over the years. The edited volume under review adds to this literature. The volume is a collection of articles from the national seminar on rural banking; the first set of articles brings out the issues involved in rural banking since reforms, followed by credit flow to specific sectors and a few case studies of Regional Rural Banks operating in Karnataka. The authors of the papers in this volume are from different disciplines, of which some have had first-hand experience in policy direction of rural financial institutions. However, most articles are based on secondary data and are descriptive in nature.

The evolution of the Indian banking sector in the post-independence era is classified into three distinct periods, viz., pre-nationalisation (1947-68); post-nationalisation (1969-1991) and post-reforms (1992). During pre-nationalisation, commercial bank activities were restricted to big industrialists and savings were channelled for those industries only; co-operative banks were functioning but unable to meet the credit demand. Hence, commercial banks were nationalised in 1969 to make banking services available to all sectors, including the rural sector. Further, to strengthen the rural banking network, a new set of banks, Regional Rural Banks (RRBs), was added in 1975, based on the recommendation of the Narsimhan Committee. Thus, multi-banking institutions were made available (Cooperative banks, regional rural banks, commercial banks and private financial institutions) for

dispensation of credit for rural development. The nationalisation and establishment of RRBs helped to increase branches in rural areas however, it has been argued that commercial banks opened branches only due to the 4:1 licensing policy. In fact, RRBs opened 1,459 branches in those villages, even as commercial banks hesitated because, they would not be economically viable. Thus, the BIMARU states have a larger share of RRBs. However, Thingalaya articulates the problems faced by RRBs in their establishment and sustainability. Neither the central nor state government provided support only NABARD provided some relief. The concepts the small man bank was done away wit often the reforms, through the Kelkar Committee (1986), had suggested marginal modifications without diluting its concept. Studies on the lending pattern of RRBs have shown that in the post-reforms are, these banks went about making profit rather than lending to the target groups because of prudential norms. Articles in this volume support this contention; for instance, the case studies of Kolar Grameena Bank, Chitradurga Grameena Bank, etc, establish that due to diversified lending operations to non-target sectors these banks were able to meet prudential norms and make profit. Further, it was argued that a couple of RRBs were unable to make profit on two accounts; with lack of experts within the bank, RRBs missed out on investment opportunities, and the scale of operation. The failure of Vardha Bank and the success of Thungabhadra Grameena Bank were because of their scale of operation. The case studies show that the banks are advancing credit where recovery assured, hence the C:D ratio is declining. But the case studies have been written like annual reports without much scrutiny of the data which appear erroneous at place. Again, one of the articles mentions that the branch expansion has contributed to the reduction in poverty. However, the articles in this volume do not provide any analysis or reference and leaves it as passing remark. Similarly, the Alva statement that non-credit inputs are not coming forward, though financing agencies are trying their level best to augment rural credit is not supported by any empirical evidence. In fact, in the 80s quite a number of studies established that the extension work of agriculture departments and institutional credit contributed to agriculture growth.

However, under the rationalisation of branch expansion programme, banks have gone in for merger or re-location of branches in semi-urban areas for economic viability. As a result, the number of rural bank branches has reduced. The C:D ratio of rural bank branches, including that of commercial banks, has declined from 61.5 per cent to 40 per cent in general; among RRBs it is 42 per cent, down from 104 to 165 per cent during 1975-86. This decline was visible after RRBs advancing to non-target groups. Prof. Nanjundappa and Thingalay express concern over these developments in their articles. They question whether, in post-reform era the right section of people is receiving credit. Nanjundappa, says that the decline in the C:D ratio in rural area, and the provision of credit to non-target sections have certainly

diversified to non-poor. If this trend continues, the poor may be driven again into the clutches of the village moneylender. These two articles make a worth while reading.

Their concerns are true and real if one examines the status of priority sector lending in the pre and post reform period. The priority sector consists of agriculture (direct and indirect), small-scale industries, etc; the Reserve Bank of India stipulated that commercial banks should earmark (target) at least 40 per cent of their advances for these sectors (of which 18 per cent to agriculture). Later the Krishnaswamy and Gosh committee, to reduce inter-class differences within the sectors, recommended that banks allocate 25 per cent of the priority sector advances, or 10 per cent of total bank credit, to weaker sections (RBI 1985).

The implementation of some of the above committee recommendations contributed to a major flow of credit to the priority sector across class; as a result, most of the commercial banks crossed the prescribed target of 40 per cent, during 1987. This has contributed to an increase in the fixed capital formation in agriculture (Rath 1990).

However, CFS recommends reduction in priority sector lending from 40 to 15 percent, saying that it amounts to denying the borrowing opportunity to other sectors, and that NPA is increasing due to directed lending. NPA was mounting due to defective loan policies and procedures of lending institutions, which impairs the borrower's ability to repay. The beneficiaries were selected wrongly or type of assets provided not to the choice of the beneficiary. For instance, a barber is given sheep; shepherd was forced to take up bullock cart and so on (ISEC 1992). But CFS does not deal with the delivery of quality credit. Though, the Gupta committee examined the quality of lending to the agriculture sector, it did not provide much clarification on the subject. The attitude of the banking staff towards the priority sector was not examined by any committee; even today, commercial bank, are not providing credit timely and adequately (Veerashekherappa 1997) and rich farmers are accumulating NPA rather than marginal and small farmers.

In the post-reforms era the share of credit to the priority sectors has declined, for instance the compound growth rate of total credit was 16 per cent, whereas the credit to priority sector and agriculture was 13 and 11 per cent respectively. This was well documented in most of the papers in this volume and other studies also support this (Bhide, Prasad and Ghosh 2002). Thus, the deployment of credit to the priority sector was not planned according to requirement. Mallikarunappa, based on district credit plan data, concludes that credit planning for rural credit has not been effective; in fact, it has been a futile exercise. This article evaluates the District Credit Plan and finds programmes ineffective due to lack of accountability among bankers.

Thus, reforms in rural banking have been on the negative side as far as the rural credit delivery system goes. In this regard the authors maintain that the credit gap for the agriculture sector may increase in the future (Renukarya). They recommend that banks be provided more autonomy like in Indonesia, instead of shifting them to urban areas. They are also in favour of raking up micro-finance activities. Thus, the back provides a comprehensive over view of the changes in the rural banking sector during pre and post liberalisation, in general, and on RRBs' performance in Karnataka in particular.

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Jyothi Parikh and Hemant Datye (eds). *Sustainable Management of Wetlands: Biodiversity and Beyond*. **New Delhi: Sage Publications. 2003. Pp. 444. Rs. 650.**

Wetlands, which are often located between dry terrestrial systems and permanent deep water systems like rivers, lakes or oceans, are one of the most productive ecosystems. Because of their niche in the landscape, wetlands are important exporters or importers of organic or inorganic nutrients respectively. These are open systems, which receive inputs from other ecosystems and the sun. Outputs or environmental services of wetlands can be exported to human society and / or to other ecosystems. Synergetic effects of hydrology, chemical inputs and climatic conditions, which affect the productivity of the environmental services, are taking place within wetlands. Human society receives products directly from wetlands and indirectly through other ecosystems. In contrast to temperate wetlands, which have more of recreational value, tropical wetlands, that are found mostly in developing countries like India, are also an important source of livelihood for local communities. However, like most other natural resources, wetlands are also facing threats from multiple sources leading to the degradation and loss of these ecosystems. Lack of adequate knowledge of this complex ecosystem, which exhibits both terrestrial and water related properties, together with the lack of well-defined property rights make sustainable use and management of wetlands a formidable task. This is perhaps true in the case of wetlands in India, many of which are threatened due to various anthropogenic reasons.

The book, 'Sustainable Management of Wetlands: biodiversity and beyond', edited by Jyothi Parikh and Hemant Datye, is an important contribution to the literature on wetlands in India. This is a valuable book wherein the authors have brought together a group of eminent researchers from diverse disciplines to deliberate on the sustainable management of wetlands. The subtitle of the book is also appropriate as it conveys an important message that there is something beyond conserving wetlands for the sake of biodiversity alone and that must be taken into account while devising policies for sustainable management of wetlands.

The theme of wetland management deliberated in this book appears to be neatly woven through the 12 chapters, apart from the introduction the chapters are organised into four sections. The first section provides an overview of wetlands, the remote sensing approach to wetland mapping and discusses specific ecosystems such as coral reefs, mangroves and man-made wetlands. Overviews of the distribution of wetlands in India, important functions, benefits and values, and the major threats, both ecological and socio-economic, are presented. Efforts towards conservation of wetlands in accordance with the Ramsar Convention to which India is a signatory, the institutional, management, planning and policy issues are

discussed here. This section also covers the usefulness of satellite remote sensing as a powerful tool for the continuous monitoring of wetlands both in space and time domains. On specific ecosystems such as coral reefs, mangroves and river systems, after providing adequate information on these ecological aspects, the authors discuss the threats and management issues.

The managerial and economic approaches are discussed in the second section. It also discusses the indicators for planning and maintenance of wetlands, and economic valuation approaches. Identification and selection of indicators are discussed at length. While emphasising the role of economic valuation, its limitations are also discussed. The need for enhancing institutional capacities to undertake valuation exercises is also highlighted. The authors argue that sustainable economic valuation has to embody economic, social and ecological implications of various policy options, consequences of human welfare on natural systems and multi-criteria decision making.

The third section is also an interesting one which presents separate case studies of Keoladeo National Park from different perspectives. This includes the description of the salient features of the Keoladeo National Park, the socio-economics of the villages around the park and a recreational user survey. The study emphasises the need for an integrated development programme of KNP since the conservation of the park surrounded by villages cannot be achieved in isolation. This section also discusses people's participation in wetland conservation through awareness programmes. Use of two alternative methodologies of economic valuation of biodiversity, such as Travel Cost and Multi criteria, are applied in the case of Keoladeo National Park. The authors argue that biodiversity conservation can be both more effective and less resource consuming if stakeholders are involved in a meaningful way in the management of the park.

The final section covers the larger picture and deals with the need for protected area networks of wetlands and the criteria for their selection. The present under representation of wetlands in the protected area network is mostly attributed to its ill-defined ownership as well as administrative jurisdiction and the dependence of millions of people on wetlands for their sustenance. The book takes the approach, and rightly so, that a total protection of wetlands is not feasible and therefore, it is better to adopt a 'conservation area' approach in which depending on the ecological, economic and sociological context, a sustainable use pattern can be built in. The authors propose a three-tiered wetland protected area and conservation area network. They go a step further and discuss about developing a national wetland strategy after taking into account the National Conservation Strategy for wetlands.

While the book is by and large successful in bringing out the ecological and economic importance of wetlands and in conveying the importance and the need for its sustainable management, some of the chapters are largely in ecological

mode. It is also felt that adequate importance is not given to certain approaches of economic valuation, which could have thrown more insight into the on sustainable management of wetlands. For example, the inclusion of case studies on ecological economic modelling or studies which have used production function or dose response approaches, would have helped in making a more effective estimate of the marginal value of wetlands. This is important when faced with the dilemma of development versus conservation of specific wetlands.

Apart from this, the book on the whole covers a wide canvas, including questions concerning wetland valuation, its importance to stakeholders, review of valuation methods, institutional initiatives and the need for capacity building, development of indicators for identifying threats, managing and monitoring wetlands, strategy for development and decision making, etc. An important merit of this book is that in addition to giving the ecological and economic aspects of wetlands, in general and for specific types of wetlands, management issues are discussed at length in most chapters along with recommendations. Most of the chapters are enriched with the appendices, which are very useful and insightful. The book even provides a blueprint for a national wetlands strategy that could be used for promoting objectives of international conventions. On the whole, this is a very useful book for ecologists, economists, planners, policy makers and managers interested in the conservation of natural resources, in general, and wetlands, in particular.

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Ritu Dewan and Michelle Chawla. *Of Development Amidst Fragility - A Societal and Environmental Perspective on Vadhavan Port*. **Mumbai: Popular Prakashan. 1999. Pp. 226. Rs. 165.**

This book evaluates environment, economic and social impacts of the proposed mega, multi-purpose, all-weather industrial port in one of the three ecologically fragile regions of the country. The development concept has been examined by analysing the existing growth pattern, the impact of current developmental policies in the context of people and the availability of national and natural resources. Infrastructural facilities have been perceived as a precondition for faster economic growth, though linkages between infrastructure and economic growth are still open for debate. Consequently, issues such as what constitutes infrastructure, patterns of infrastructure, priorities of investment in infrastructural

facilities and their relationship with goals of growth and social justice need attention. Meanwhile, another aspect that becomes important is whether new investment is at all necessary in creating new alternative infrastructure facilities, considering the huge capital requirement, economic, social and environmental impacts, particularly by mega projects. In this context, the present study has analysed the economic, social and environmental impacts of a proposed mega industrial port in the Vadhavan area in the Dahanu taluka of Maharashtra, which is an ecologically fragile area notified by the Ministry of Environment and Forests. Recognising the significance of infrastructure in development, the study has illustrated its impact on various interlinked issues covering production patterns and systems, the livelihood base of local people, which would be destroyed by the proposed port.

Recent policy changes in the port sector at national and state levels due to the expected increase in port traffic persuaded the Maharashtra Government to initiate the process for construction of new ports. This book has traced the details behind the proposal of constructing a mega industrial port at a location, Vadhavan, and its possible economic, social and environmental impact. Interestingly, this location was found unsuitable for industrial activities, and declared as an ecologically fragile area. The book has documented in detail the environmental legal history and industrialisation of the Dahanu region. It shows that the government has ignored the criticality of the region, several laws and recommendations of committees and studies and established industries. The Central Government Standing Committee on Thermal Power Plants rejected the proposal for a power plant in Dahanu taluka in 1988, but still a thermal power plant was established there subject to a large number of conditions, which were violated. The Consulting Engineering Services (CES) rejected the Vadhavan point as a possible port site on technical, economic and environmental factors such as construction of breakwaters, long approaches to berths, access through private land, heavily built up existing roads, privately owned land, cost of land acquisition, violation of environment notifications, etc. In addition, the point is close to the Atomic Plant at Tarapur. Ignoring all these factors, the Maharashtra Government proposed the construction of a port by floating a global tender. The study points out that the expected benefits mentioned in the proposal are not realisable and also most of the statements made about the port are contradictory. Moreover, the estimated demand of port traffic could be fulfilled by optimum use of the existing ports. Establishing another port close to Mumbai Port and Jawaharalal Nehru Port is economically not viable, as it would merely divert traffic and lead to underutilisation of built-up capacities.

The study identifies the actual number of villages to be affected by the proposed project, economic activities of people and the impact on local economy. A total of 46 villages, 216 hamlets and the Dahanu Municipal Corporation (DMC) would be directly affected by the project. The estimated geographical area to be

affected is 28,981 hectare, which might increase with indirect effects. Construction of the port would directly affect 1.64 lakh people and the migrant population, which is higher than the number (0.77 lakh) given in the proposal. It is to be noted that nearly 33 per cent of the affected population are tribal, again a fact under-quoted in the proposal. Further, the proposal has not given due consideration to the issue of displacement and rehabilitation.

The primary economic activities of people are dependent on resources of the region. In the proposed project area, a large number of people, about 85 per cent, depend upon the primary sector for their livelihood because of the availability of abundant natural resources. Besides cultivation, other activities such as fishing, forestry, livestock and plantations are also practised by local people. However, the proposed project has not considered all these factors. Significantly, it has ignored the landless and women folk in its rehabilitation package. Indeed, the rehabilitation package has considered less number of people than the actual affected. The study brings out that the proposal has underestimated the area under cultivation, area under irrigation, yield, livestock economy etc., which directly affect the compensation package.

The proposed port of such magnitude with its extensive infrastructural linkages and the resultant spread of ancilliary industries would severely affect existing livelihood patterns, production levels and systems. The fishing, agricultural, horticultural and livestock sectors would be affected both directly and indirectly. It is surprising that a mega port is sought to be located in an area of rich agricultural and horticultural economy, which can hinder the State's attempt of meeting production goals, as the proposed area is one of the major contributors of agricultural and horticultural products. A large number of people will be dispossessed from land, sea and forests, thus losing their main livelihood source.

The environmental implications of the proposed project are also highlighted in the study. Dahanu taluka is one of the three ecologically fragile areas in the county notified by the Ministry of Environment and Forests in 1991. The project would affect the habitat of many varieties of flora and fauna in the area. It is important to note that different committees have rejected establishing any industrial activity in the region considering its deleterious impact on the local economy and environment. In spite of that, several industries have been established in the area resulting in ingress of sea water, decline in wetlands and agricultural lands, degradation of forests, unregulated urbanisation, misuse of tribal land, extensive changes in fish harvest patterns, etc. In these circumstances, the State Government went ahead with the plan of establishing a port. Environmental impact assessment studies of the proposed port reveal that the marine environment would be disrupted severely because of the various activities involved in the construction and operation phase. Water and air quality will also be adversely affected due to the project. The

study states that the environmental impact of the port would be irreversible and irreplaceable in both tangible and intangible terms on created and natural resources. Construction of the proposed port would imply not only the total loss of livelihood of people but also the dismantling of production systems, food security, dislocation of long-established settlements, marginalisation, increased vulnerability of socially disadvantaged classes, loss of biodiversity, etc.

The book has attempted to address several issues related to the impact of the proposed project. However, it seems that the study has viewed it from one side alone, that is assessing the negative impact in detail, while sparsely mentioning about the benefits of the proposed project. Although recommendations of other studies on feasibility of the area are mentioned, the study should have also provided a comparison of both direct and indirect costs and returns and the positive and negative impact on different sections of society. Still, the book provides an alternative view of development projects by examining the likely impact of the proposed mega industrial port in Maharashtra.

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Book at a Glance

A. R. Kulkarni and N. K. Wagle (eds). *Region, Nationality and Religion.* Mumbai: Popular Prakashan. 1999. Pp. 209. Rs. 300.

The academic tradition of undertaking historical or cultural studies in the colonial setting has been fast receding. Academics are no longer attracted to this inter-disciplinary area of research in history, politics, economics and sociology, not so much due to its research contents but largely due to the overt attractions in other fields. However, the book edited by Prof A R Kulkarni and N K Wagle is a notable exception. It is actually an outcome of the international conference on *Maharashtra: Culture and Society* held at the University of Pune in 1987. This book still bears testimony to the traditional systematic analysis. A large number of social thinkers and social scientists participated in the conference.

The book contains a few carefully chosen essays focusing on Maharashtra's cultural mosaic in the colonial setting. The essays examine various aspects of culture, religion, society and development policy in Maharashtra. One can read the essays broadly in three groups: first, those covering the culture of Maharashtra, starting with Prof M S Gore's authoritative essay on cultural development. Essays by Meera Kosambi, Indira Rothermund, N K Wagle and Frank F Conlon illustrate the cultural diversity and historical emergence of the Marathi culture. Most of the authors focus on the period between 1812 and 1947. The second group of essays deals with events of historical importance and cover the freedom movement and religion in the region. The third group includes essays that bring out specific niches in Maharashtra's cultural setting suggesting lessons for other regions. It is quite interesting to read the cultural travelogue of any state in India, and Maharashtra is no exception. For example, Wagle's study of Sripat Sesadri's case makes quite an interesting reading as does Jim Masselos' on managing the Prabhat Pheris. These essays provide a medley of cultural aspects and changes during those eventful decades. The book captures a glimpse of the central Indian states developing under the colonial rule and still sustaining their cultural, social and political identity.

Avinash Jha. *Background to Globalisation.* Mumbai/Bangalore: Centre for Education and Documentation (CED). Pp. 180. Rs. 150.

Abundant literature is available on the process of globalisation as well as its impact. Broadly, two important streams could be identified in this: First, there are strong proponents of free market economies with capitalist process of development in the background of their writings. These studies largely highlight the positive points of globalisation, at times beyond the comprehension of a common reader. Many of them use strong jargon and mathematical models to buttress their argument.

The second stream is another extreme, comprising critics of the free market who question the efficiency of the system vis-à-vis the state in the context of equity. These two streams generally put the readers in a dilemma and each one is significantly loaded with dogma and jargon in its ideological backup. This small monograph, brought out by the Centre for Education and Documentation, tries to demystify the process and impact of globalisation. The readings are elaborated in a simple language and do not have the usual dogma. The monograph, with six chapters and a good appendix, has glimpses of recent views and debates as well as the future expectations as perceived by some important writers.

The monograph opens with a clear elaboration of globalisation, market and changing lives, and provides a good discussion on the state and the process of globalisation. The philosophies and the debate on the origin of globalisation are dwelt upon to highlight the US-led global economy. The emerging crisis of the Third World is set against this background in order to understand the problems confronted by the developing world in the process of globalisation. The monograph is written for non-specialists who would like to understand the process from within and who, at the same time, would not want any coloured picture of it. The reader is guided through a variety of clear views without any frills attached to them.

Ramaswamy R Iyer. *Water: Perspectives, Issues, Concerns.* Sage Publications. Pp. 368. Rs. 550.

Among the natural resources, water is of significant importance both due to its scarcity and inefficient use in the world. A number of debates have cropped up during the last three decades on scarcity and efficient use of water for irrigation as well as for drinking. During these debates Ramaswamy Iyer has always stayed in the forefront in Indian context. The first issue that emerges in the Indian context is the federal structure of the country and management of water in that milieu. In the Indian federal background, water resources provide quite a complex picture as all the policies are largely dictated by the Central government and the states have to implement and administer the water use and pricing components. This has hardly been recognised by those working in the discipline. The mismatch is obvious so also the implications but little is done to analyse it. In his book, Iyer deals with many such issues spread over six sections. Initially, he outlines the contours of inter-state water disputes and water in the context of Indian federal state. A very refreshing scrutiny of the National Water Policy 2002 is provided and that opens up a number of debatable issues. Being a long-time administrator in the water resource department at the Central government, his work on the National Water Law is certainly eminent and worth mulling over. He chalks out the contours of the National Law proposals and provides his insightful views about them. Over the years, Iyer had actively participated in the debates on large dams, including Sardar Sarovar and Tehri. His stand is well-known and admired by most of the academics working on irrigation.

His views are quite balanced and the arguments are well accepted. Of course, there can be different views, but these arguments provide the starting point. He has included all those debates in one section of the book and provided a clear depiction.

The book also includes an assessment of the relationship between the Government of India and the World Commission on Dams. From the administrator's point of view, it is dealt with elaborately and focuses on the conflicting resolutions and dilemmas of water management in India. However, some more depth in the Indian context would have been appropriate. The book ends on a very positive note on the future course of action and, at the same time, does not miss the larger controversy over interlinking of rivers. For anyone scouting for a commanding reading on water resources in India, this volume provides insightful inputs and, therefore, it is a must read for researchers in this area of social science research.

Syed Nawab Haider Naqvi. *Development Economics – Nature and Significance.* New Delhi: Sage Publications. Pp. 269. Rs. 275.

The development of development economics has been quite significant during the last four decades. During this time, the concepts have undergone significant changes. So also the development models and development thinking. Beginning from the growth in per capita income, we have now reached the new human development paradigm in measuring development. Sometime back, influential academics were talking about the obituary note of development economics, but settled down to redefinition of this inter-disciplinary subject. The handbooks of development economics, like the ones by Kaushik Basu and Debraj Ray, provided yeoman service by covering the complete canvass of the subject. However, there was a necessity to deal with the subject from welfare angle. This book by Prof Naqvi fills the void and very refreshingly discusses development economics in a holistic manner.

Prof Naqvi begins with the definition concept and the debates covering development economics, starting with Hirschman's obituary, and brings to the fore the new emerging paradigms in the development economics literature. He deals with the mixed economy route of development and, being from the South Asian region, he shows full command of the anatomy of mixed economy. Interestingly, morality and development are discussed in a welfare economics paradigm. These readings provide a very new outlook on the study of the subject. Prof Naqvi, being a teacher and a researcher for a long time, never fails in simplifying the subject and provides succinct arguments. One of the important central themes tackled in the book is altruism in answering different questions; but he concludes that the search for the value-free, ethically neutral, decision-making rules is pointless and counter-productive. The book provides rich material for the students and teachers of development economics and makes for an essential accompaniment in the kit of any development economist.

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Rao, V. K. R. V. (1983). *India's National Income 1950–1980.* New Delhi: Sage.

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