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IMPACT OF SOCIAL DEVELOPMENT AND ECONOMIC DEVELOPMENT
ON MORTALITY: A COMPARATIVE STUDY OF
KERALA AND WEST BENGAL

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Abstract

Kerala's mortality level has been lower than West Bengal's at least since the early 20th century. The difference became sharper in the 1970s. Environmental and hygienic conditions are more favorable in Kerala, but the difference does not seem to be great enough to explain a significant part of the mortality differential. The empirical evidence from various surveys shows that the differences between the states in nutritional standard, per capita income, distribution of income and assets, industrialization and urbanization, cannot explain the lower mortality level in Kerala. The wider distribution of health facilities in the rural areas of Kerala and their greater utilization are found to be significant factors. Two important reasons why the health facilities are used more in Kerala have been identified. First, the proportion of literates, particularly among females, is much higher in Kerala. Historically, there has always been greater emphasis in Kerala on education and public health. Secondly, the rural poor in Kerala are more aware of their rights to use health and other public facilities than those in West Bengal. The differential awareness can be traced to the historical difference in the social and political movements in the two states. In general, West Bengal has always been characterized by a higher level of economic development and Kerala by a higher level of social development. The lower mortality level in Kerala can be attributed mostly to its higher social development and partly to its favorable environmental and hygienic conditions.

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I. INTRODUCTION

Kerala and West Bengal, the two most densely populated states of India, provide an interesting focus for the exploration of regional mortality differentials. Historically, Kerala has experienced significantly lower mortality rates than West Bengal, and the gap between the two widened in the 1970s. Yet on many counts--environment, nutrition, income, industrialization, urbanization, health facilities--the two states enjoy comparable standards of living, with West Bengal always having a slight edge in economic aspects. The two states also share historical traditions of emphasis on education and a leftist political orientation, which might be expected to lead to similarities in lifestyle.

The objective of this comparative analysis is twofold: to set forth the available, admittedly imprecise, data on mortality levels in the two states; and to analyze socioeconomic factors commonly thought to be correlated with mortality levels. Kerala's record mortality decline has spawned a number of theories explaining the trend; several of these will be examined at relevant points. The educational and political traditions of the two states are explored in some depth, and it is tentatively suggested that the broader involvement of the general population in both systems in Kerala may account for their greater demands for, and higher utilization of health and other governmental social services, characteristics that, in turn, may contribute to the lower mortality levels.

II. EVIDENCE REGARDING MORTALITY DIFFERENTIAL

The mortality differential between Kerala and West Bengal can be assessed from the available estimates of the crude death rate, the infant mortality rate, the expectation of life at birth, and the probability of death in specified age ranges.

Since the 1940s, Kerala has had the lowest recorded crude death rate among the major states of India. According to the sample registration data collected annually by the Office of the Registrar General of India, the rate was 7.0 in 1978 compared with rates of 11.6 for West Bengal and 14.2 for India as a whole (India ORG 1980).¹ Kerala's estimated crude death rate is also lower than the average estimate of 9 for the developed countries in 1977-78 (PRB 1980).² As shown in Table 1 the crude death rate in Kerala has been

Table 1. Crude death rates in intercensal periods 1911-20 to 1961-70

	<u>Kerala</u>	<u>W. Bengal</u>	<u>India</u>
1911-20	37	50	47
1921-30	32	42	36
1931-40	29	N.A.	31
1941-50	18(L)	29	27
1951-60	16(L)	21	23
1961-70	11(L)	19	18

Sources: Bhattacharjee and Shastri (1976:14) for 1911-20 to 1951-60 and Mitra (1978:112) for 1961-70.

(L) denotes lowest figure among major states of India.

N.A.: Not available

lower than the rates in West Bengal and India, during every intercensal decade since 1911-20. Death rates have declined in Kerala, West Bengal, and all-

India throughout the century, but the decline in the 1970s in Kerala is particularly marked.

Sample registration data in Table 2 show that Kerala's lower crude death

Table 2. Crude death rates in rural and urban sectors from Sample Registration Survey data, 1968 to 1978

	Rural			Urban			Total		
	Kerala	W.Bengal	India	Kerala	W.Bengal	India	Kerala	W.Bengal	India
1968	10.0	13.4	16.8	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1969	9.2	10.8	19.1	N.A.	N.A.	11.4	N.A.	N.A.	N.A.
1970	9.2	12.0	17.3	8.8	6.3	10.1	9.2	10.6	15.7
1971	9.1	N.A.	16.4	8.4	9.2	9.7	9.0	N.A.	14.9
1972	9.4	N.A.	18.9	7.8	10.5	10.3	9.2	N.A.	16.9
1973	8.7	N.A.	17.0	7.2	8.9	9.6	8.5	N.A.	15.5
1974	8.0	13.1	15.9	7.0	10.4	9.2	7.8	12.4	14.5
1975	8.5	13.7	17.3	7.8	10.6	10.2	8.4	13.0	15.9
1976	8.2	12.5	16.3	7.6	9.8	9.5	8.1	11.9	15.0
1977	7.4	12.8	16.0	6.8	8.4	9.4	7.3	11.7	14.7
1978	7.1	12.6	15.3	6.7	8.3	9.4	7.0	11.6	14.2

Sources: India ORG (1975) for 1968 and 1969; India ORG (1976) for 1970 and 1971; India ORG (1978) for 1972 and 1973; India ORG (1979) for 1974; India ORG (1980) for 1975, 1976, 1977.

N.A.: Not available

rate has held consistently for both rural and urban areas since 1971. While rural estimates are typically higher than the corresponding urban estimates, the rural-urban differential is lower for Kerala than for West Bengal or all-India. In 1978, the latest year for which data are available, the differential was only 0.4 for Kerala, as compared with 4.3 for West Bengal and 5.9 for India.

Estimates of life expectancy at birth reflect the same pattern. The figures for both males and females in Kerala have been higher than those for West Bengal for all four intercensal decades (Table 3). For example, during

Table 3. Expectation of life at birth (in years) for males and females in various intercensal decades

	Male			Female		
	Kerala	W. Bengal	India	Kerala	W. Bengal	India
1911-20	25.5	21.5*	22.6	27.4	21.6*	23.3
1921-30	29.5	24.9*	26.9	32.7	24.8*	26.6
1951-60	49.0	44.7	41.4	48.3	43.9	40.0
1961-70	59.3	49.0	47.9	59.3	50.9	45.5

Sources: Kerala BES (1976) for 1911-20 & 1921-30 estimates of Kerala; Mitra (1978:39) for 1911-20 and 1921-30 estimates of West Bengal; Bhattacharjee and Shastri (1976:23-24) for all 1951-60 estimates and Dyson (1979) for all 1961-70 estimates.

* estimates of West Bengal refer to those of undivided Bengal which included the present Bangladesh.

the most recent census decade, 1961-70, the expectation of life at birth in Kerala for both males and females was 59.3 years, while the corresponding figures for males and females in West Bengal were 49.0 years and 50.9 years respectively.

Census data suggest infant mortality rates were higher in Kerala than in West Bengal at least up until 1941-50 (Table 4). However, estimates for re-

Table 4. Infant mortality rate in intercensal decades 1911-20 to 1961-70

	Kerala	W. Bengal	India
1911-20	242	205	278
1921-30	210	181(L)	229
1931-40	173	159(L)	207
1941-50	153	147(L)	192
1951-60	120	120	140
1961-70	66(L)	N.A.	114

Source: Bhattacharjee and Shastri (1976:16-18) compiled from various Census of India publications.

(L) denotes lowest figure among major states.
N.A.: not available.

cent years, based on survey data and expected to be more reliable than those based on census data show that since 1960, the infant mortality rate in Kerala --for both males and females and for both rural and urban areas--has almost always been lower than that for West Bengal (Table 5).

Table 5. Male and female infant mortality rates for rural and urban areas

	Rural						
	Kerala			West Bengal			
	M	F	Total	M	F	Total	
Around 1960	N.A.	N.A.	79	N.A.	N.A.	85	Natarajan (1979)
1964-65	64(L)	46(L)	55(L)	85	78	81	Mitra (1978:130-32)
1970	59(L)	53(L)	56(L)	115	111	114	India ORG (1978:13-14)
1973	58(L)	52(L)	N.A.	N.A.	N.A.	N.A.	India ORG (1978:13-14)
	Urban						
Around 1960	N.A.	N.A.	64	N.A.	N.A.	91	Natarajan (1979)
1964-65	32(L)	64(L)	46(L)	74	56	65	Mitra (1978:130-32)
1970	42(L)	38(L)	40(L)	59	65	61	India ORG (1978:13-14)
1973	57(L)	37(L)	N.A.	104	71	N.A.	India ORG (1978:13-14)

Sources: India ORG (1978) used Sample Registration Survey (SRS) data; Mitra (1978) cited National Sample Survey (NSS) data. Natarajan (1979) estimated from child survivorship data of 1972 Fertility Survey (25% subsample of SRS households).

(L) denotes lowest figure among major states.

N.A.: Not Available

The measures of probability of death up to ages 2, 3, and 5 years (in demographic notation, q_2 , q_3 , and q_5) which are derived from the data collected in a 1972 survey by the Office of the Registrar General of India, show the same pattern as the infant mortality rate in the 1950s and early 1970s. The estimates for Kerala (1972)—for both males and females and both rural and urban areas—are, without exception, lower than for West Bengal (Table 6).

Table 6. Probability of death from birth to ages 2, 3 and 5 years (q_2 , q_3 , and q_5) for males and females in rural and urban areas, 1972

	q_2			q_3			q_5		
	<u>Kerala</u>	West		<u>Kerala</u>	West		<u>Kerala</u>	West	
		<u>Bengal</u>	<u>India</u>		<u>Bengal</u>	<u>India</u>		<u>Bengal</u>	<u>India</u>
R U R A L									
Male	.09(15)	.10(14)	.15	.11(15)	.13(12)	.16	.11(15)	.14(13)	.17
Female	.06(15)	.11(13)	.14	.09(15)	.12(13)	.16	.13(15)	.14(14)	.18
U R B A N									
Male	.05(15)	.11(6)	.11	.08(14)	.13(5)	.11	.09(15)	.12(4)	.13
Female	.04(15)	.10(8)	.10	.09(13)	.11(a)	.11	.11(13)	.13(7)	.13

Source: Natarajan (1979), estimated from child survivorship data of 1972 Fertility Survey (25% of subsample of SRS households) using Brass Technique.

Figure in parentheses denotes rank order among 15 major states in descending order.

The mortality estimates presented in Tables 1 to 6 are incomplete and admittedly not very accurate. But the consistency of patterns observed in different measures computed from varied data sources leaves no doubt that mortality levels in Kerala--for both males and females and in both rural and urban areas--have been generally lower than in West Bengal throughout most of this century. It also appears that this differential has been increasing since the early 1970s.

Causes of Death

An obvious point of departure in explaining mortality differentials is to analyze causes of death. Unfortunately, data on cause of death in India are extremely poor since only a small proportion of deaths occur in medical insti-

tutions or are attended by qualified medical practitioners. For example, in 1964-65 Kerala had the highest proportion of institutionalized deaths in India--8 percent in rural areas and 26 percent in urban areas. The corresponding estimates for West Bengal were 3 percent and 13 percent.

Based on hospital and dispensary records, however, five major causes of death have been identified for Kerala and West Bengal for the years 1961 and 1970 (India CSO 1977). The most frequent causes of death in hospitals and dispensaries in both Kerala and West Bengal were the same: "diseases of alimentary system" (13 percent in both states) in 1961, and "accident, poisoning, violence" (15 percent in both states) in 1971. There were some variations between the two states and between the two time periods, but there were no significant differences between the states that could throw any light on the explanation of differential mortality. Epidemic disease (e.g., smallpox, cholera and malaria), which previously caused a large proportion of deaths in both states and which are controllable by public health measures, were no longer major killers in any state by 1961.

Recently, the Office of the Registrar General of India introduced the Model Registration Scheme, utilizing paramedical personnel to collect information on causes of death for all deaths occurring in selected villages in each state. The data available so far are, however, not very useful. For example, 80 percent of deaths in Kerala and 84 percent of deaths in West Bengal in 1971 were attributed to unidentified "all other causes" (India ORG 1976:126-27).

III. ENVIRONMENT, PERSONAL HYGIENE, AND NUTRITION

Climatic conditions in Kerala and West Bengal are not sufficiently

dissimilar to cause any difference in morbidity and mortality, but a few other ecological factors in Kerala seem to be more favorable to better health. A larger portion of the population in Kerala, compared to West Bengal, lives near the sea, whose tidal currents perhaps help in the prevention of epidemic diseases. Kerala also has more running water in streams that provide much of its population with reasonable clean water for drinking and washing purposes (Chaitanya 1972:3). The availability of clean water and tradition of cleanliness among the people of Kerala are reported to exert an effective check on epidemics (Kerala SPB 1976:8; Aiyar 1925:133). West Bengal has more water tanks, but due to lack of proper maintenance, the water in these tanks is not hygienic.³

Most urban areas in both states are provided with a constant supply of clean drinking water through pipes and handpumped tube-wells, but reliable data regarding the supply of clean drinking water in rural areas are not available. The people in Kerala, particularly those of higher economic strata, maintain a traditional practice of boiling water for drinking purposes, sometimes adding jiram (cumin seeds) to it, and poor people in the state drink a lot of kanji (boiled rice water) which is more hygienic than ordinary water (Aiyar 1925:132). For these reasons, people in Kerala may be less susceptible to potentially fatal diarrheal diseases than those in West Bengal, although there are no solid data to support this hypothesis. Hence, the environmental and hygienic conditions appear to be more favorable in Kerala than in West Bengal, but it is extremely difficult to assess their differential impact on morbidity and mortality.⁴

A low level of nutrition may contribute to high mortality because it reduces resistance to many diseases. The nutritional data for the Indian states

are poor in quantity and quality. I shall examine below some available survey data to see whether the people in Kerala receive better or worse nutrition than those in West Bengal.

Per Capita Calories

Results of nutritional surveys conducted in Kerala and West Bengal between 1961 and 1976 (Table 7) vary considerably due to changes in nutritional levels, differences in survey methodology, and, most certainly, to shortcomings in data collection. All the results suggest that the calorie intake per capita per day in Kerala is lower than that in West Bengal. Furthermore, in

Table 7. Caloric intake per capita per day in rural and urban areas, 1961-62 to 1972-76.

	RURAL		URBAN		RURAL & URBAN	
	Kerala	West Bengal	Kerala	West Bengal	Kerala	West Bengal
1961-62	1,631(15)	2,175(13)	1,554(15)	2,040(11)	1,620(15)	2,412(8)
1960-69	N.A.	N.A.	N.A.	N.A.	1,842	1,927
1971-72	2,023	2,311	2,103	2,431	N.A.	N.A.
1972-76	1,983(9)	2,279(2)	N.A.	N.A.	N.A.	N.A.

Sources: UN (1975) cited 1961-62 data from National Sample Survey (NSS) Draft Report No. 200; Gopalan et al. (1971) compiled 1960-69 data from the Reports of the Nutrition Work Done in the States by National Institute of Nutrition, Indian Council of Medical Research and from the Annual Reports on Nutrition Activities carried out in the states and union territories prepared by Nutrition Cell of the Directorate General of the Health Services, Government of India; India NSSO (1975a, 1975b, and 1975c) tabulated 1971-72 data obtained from National Sample Survey (NSS); India NIN (1978) tabulated 1972-76 data from nutrition surveys done by National Nutrition Monitoring Bureau of National Institute of Nutrition.

Figure 6: parentheses denotes rank order in descending order among 15 major states in 1961-62 and among 9 major states in 1972-76.

1961-62 Kerala's per capita intakes of 1,631 and 1,554 calories in rural and urban sectors represented the lowest estimates among the 15 major states of India, and in all nutritional surveys up to 1976 the per capita calorie intake in Kerala was found to be less than 2,200--the average per capita requirement in India (UN 1975:30). There is reason to believe, however, that the underestimation of food consumption is likely to be greater in Kerala than in West Bengal--and a number of other states--because the people in Kerala consume large amounts of staples that are available mainly through nonmarket mechanisms and hence more likely to be overlooked in response to the nutrition survey questionnaire (e.g., coconut, tapioca, fish, and banana). A clear sign of such underestimation is the NSS (1962-62) allocation of zero calories from coconut in the total per capita consumption of 1,620 calories in Kerala (UN 1975:23). Coconut is such an important fruit in Kerala that it is known as kalpa vriksha, "the giver of all our needs." More than 25 percent of the total cultivated area in the Travancore area of Kerala is planted with coconut (Velu Pillai 1940:6).⁵

The Center for Development Studies (CDS) at Trivandrum has made its own estimate of calorie consumption in Kerala based on the amount of food produced in the state and the amount imported and exported. According to this estimate, the per capita calorie consumption in 1961-62 was 2,337 with 245 calories attributed to coconut. The CDS estimate leads us to doubt seriously the NSS estimate, at least of 1960-61, but it should not necessarily lead us to infer a higher calorie intake in Kerala than in West Bengal. In another study by the CDS, regression analysis of calorie intake showed that in India the level of foodgrain production influences the level of calorie intake independently of income and price levels. Since per capita foodgrain produc-

tion in West Bengal has always been higher than in Kerala, the per capita calorie intake is likely to be higher as well (UN 1975:11-15; West Bengal BAES 1977:221).

Per Capita Protein Intake

The NSS data of 1971-72 show that the percentage of calorie intake is lower in Kerala than West Bengal for some food groups and higher in others. The protein intake per capita per day is estimated to be lower in Kerala in both rural and urban areas (Table 8). The consolidated results from a few nutrition surveys conducted by various agencies during 1960-69 suggest that although the total protein intake per capita per day was lower in Kerala, the

Table 8. Percentage of caloric intake from different food groups and protein intake per capita per day in rural and urban sectors, 1971-72.

Percentage of caloric intake from:	Rural		Urban	
	Kerala	W. Bengal	Kerala	W. Bengal
Cereals, potato, sugar, jaggery and cereal substitutes	78	86	71	70
Pulses, nuts and seeds	7	3	8	5
Milk and milk products, meat, egg, fish	5	3	8	6
Fruits, vegetables, spices, prepared food	7	4	11	13
Protein intake per capita per day (grams)	50	63	56	70

Sources: India NSSO 1975a, 1975b, 1975c.

per capita intake of animal protein and fat was higher in Kerala than in both West Bengal and India (Gopalan et al. 1971:119). This finding, if true, would be remarkable in view of the fact that only about 5 percent of the rural West Bengal population are vegetarian, whereas about 30 percent of the rural Kerala population are so (Gopalan et al. 1971:49). More likely, these results simply illustrate the extremely poor quality of data in this area.

Distribution of Food

Is it possible that even if per capita calorie and protein intake is lower in Kerala than in West Bengal, there is more egalitarian distribution of food in Kerala than in West Bengal? More effective implementation of land reforms, more extensive public distribution of food in rural areas through fair price shops and more successful free school feeding programs in Kerala (UN 1975:41-43; Gwatkin 1978) would seem to support such a hypothesis. But the available data do not indicate a more egalitarian distribution of food in Kerala.

The estimates of Gini coefficients--measuring relative inequality in rural consumption expenditure (food comprising the bulk of such expenditure)--for each year between 1957-58 and 1973-74 are higher for Kerala than for West Bengal (Table 9). The same is true for the Lorenz ratio (a similar measure) estimated for a few selected years.⁶

Ratcliffe (1978:124) has stated that "the Kerala experience is consistent with extensive research data demonstrating that mortality rates are more closely associated with income, education and broad nutritional levels than with the spread of health services," but the above discussion of nutritional data does not support that statement. The data give no indication that per capita consumption of food is higher in Kerala than West Bengal (except in an-

Table 9. Measures of relative inequality in rural consumption expenditure, 1957-48 to 1973-74.

	Gini Coefficient			Lorenz Ratio	
	Kerala	W. Bengal	India	Kerala	W. Bengal
1957-58	.35	.27	.34	.35	.27
1959-60	.34	.27	.32		
1960-61	.33	.26	.33	.32	.25
1961-62	.33	.28	.32		
1963-64	.30	.27	.24	.30	.26
1964-65	.34	.24	.30		
1965-66	.30	.26	.30		
1966-67	.30	.26	.30		
1967-68	.32	.25	.29	.31	.25
1968-69	.42	.23	.31		
1970-71	.33	.27	.29		
1973-74	.32	.30	.28		

Sources: Ahluwalia (1978:317) estimated Gini coefficients and Vaidyanathan (1974:236) estimated Lorenz ratio from National Sample Survey (NSS) consumption expenditure data.

imal protein) or that the distribution of food is more egalitarian in Kerala. Hence, nutritional differences cannot explain the lower mortality rate in Kerala as compared to West Bengal.

IV. INCOME AND CONSUMPTION EXPENDITURE

Another pertinent question is whether the people of Kerala are better off than those of West Bengal in terms of standard of living, as reflected by their income and consumption expenditure. Measures of both income average and income distribution are relevant.

Per Capita Income

The estimates of annual per capita income by state made by the Central Statistical Organization (CSO) and by the National Council of Applied Economic Research (NCAER) are not comparable due to methodological differences, but both show that at least between 1950-51 and 1970-71, the per capita income in Kerala was consistently lower than that in West Bengal (Tables 10 and 11). The difference was less in later years, but even in 1970-71 the annual per capita income in Kerala was only 85 percent of that in West Bengal. Estimates

Table 10. Per capita income at 1960-61 prices (NCAER estimates), 1950-51 to 1960-61 (Rupees).*

	<u>Kerala</u>	<u>W. Bengal</u>	<u>India</u>
1950-51	304	471	296
1955-56	312	449	308
1960-61	326	462	336

Source: NCAER (1967:57)

*U.S. \$1 was equivalent to approximately Rs.5 during the period.

Table 11. Per capita income at 1960-61 prices (CSO estimates), 1960-61 to 1970-71 (Rupees)*.

	<u>Kerala</u>	<u>W. Bengal</u>	<u>India</u>
1960-61	259	321	306
1965-66	264	351	335
1970-71	292	344	341

Source: Kerala BES (1977:84) citing data from the Central Statistical Organization, Govt. of India.

*U.S. \$1 was equivalent to approximately Rs.5 up to 1965 and Rs.8 thereafter.

of per capita net domestic product show a similar spread between Kerala and West Bengal (Table 12).

Table 12. Per capita net domestic product at factor cost (at current prices), 1959-60 to 1975-76 (Rupees).

	<u>Kerala</u>	<u>W. Bengal</u>
1959-62	315	465
1970-71	636	729
1971-72	633	775
1972-73	709	776
1973-74	876	920
1974-75	969	1080
1975-76	1000	1100

Sources: India CSO (1979a:144-5) for 1970-71 to 1975-76 and UN (1975:11) for 1959-62.

The differences in per capita income between Kerala and West Bengal shown in Tables 10 and 11 would be narrowed somewhat if remittances by out-migrants were taken into account. Remittances from Kerala workers in the Gulf area are known to have had an impact on the state economy, but significant migration from Kerala to the Gulf area occurred too recently to affect the per capita income estimates up to 1970-71. A few studies suggest that remittances received from outside the state were always higher in Kerala than in West Bengal and the remittances sent outside the state were always higher in West Bengal than in Kerala.⁷ A more favorable remittance pattern in Kerala, however, is not likely to fully offset the difference in the standard of living between Kerala and West Bengal, as reflected in their per capita income estimates.

Per Capita Consumption Expenditure

The National Sample Survey (NSS) Organization regularly collects private consumption (food and non-food) expenditure data from a sample of households in each state of India. These refer to household purchase and consumption during 30 days preceding the date of survey. The rank orders presented in Table 13 show that per capita consumption expenditure in rural and, partic-

Table 13. Ranking (in descending order) of Kerala and West Bengal in estimated per capita consumption expenditure among major Indian states and comparison with all-India average expenditure, rural and urban areas, 1957-58 to 1967-68*

National Sample Survey Round No. and Year	Rural				Urban			
	Rank among 14 states		Percent of all India avg. expend.		Rank among 14 states		Percent of all India avg. expend.	
	West		West		West		West	
	Kerala	Bengal	Kerala	Bengal	Kerala	Bengal	Kerala	Bengal
13(1957-58)	13	7	89	102	11	3	90	121
14(1958-59)	12.5	7	84	106	15	3	77	129
15(1959-60)	12	7	86	102	13	2	82	139
16(1960-61)	13	6	85	106	14	3	80	122
17(1961-62)	10	12	97	96	12	3	85	124
18(1963-64)	14	4	91	106	14	3	83	126
19(1964-65)	14	13	84	88	13	3	84	114
22(1967-68)	15	7	95	99	15	3	76	114

Source: Chatterjee and Bhattacharya (1974:199-206) compiled data from various National Sample Survey (NSS) Reports.

* Consumption expenditure includes private food and non-food expenditure but excludes non-recurring expenditure such as for marriage.

ularly, urban areas was generally lower in Kerala than West Bengal from 1957-58 to 1967-68. The Kerala estimates for the urban areas never exceeded 90 percent of the Indian average, while the corresponding West Bengal estimates were never less than 114 percent of the Indian average.

Distribution of Consumption Expenditure, Income and Assets

It has been argued that although the average income in Kerala remains low, a number of factors unique to this state have operated to generate a more egalitarian distribution of income and assets, which, in turn is a major factor in the reduction of mortality as well as fertility levels in the state (Ratcliffe 1978:160). There are no data to compare the distribution of income, but the estimates of Gini coefficients and Lorenz ratios for consumption expenditures, presented in Table 9, show just the opposite--in private household consumption Kerala has been more inequalitarian than West Bengal, and almost always more so than the rest of India, from 1957-58 to 1973-74.

The finding of relatively more inequalitarian distribution of consumption in Kerala needs some explanation in view of recent reports about better implementation of land reform, a minimum wage, and other distributive measures in Kerala than elsewhere in India. The first general election after the formation of the new state of Kerala (merging the former princely states of Travancore and Cochin with the Malabar area of the former Madras state) in 1956 resulted in a rule of the state government by the Communist Party of India (CPI), which immediately took up legislation and implementation of land reforms as a centerpiece of development strategy. The CPI was removed from power by a Presidential decree in 1959, but it remained influential enough to put sustained pressure for land reform on the subsequent governments. The effect of land reform on income distribution is, however, not very clear. A report by the Centre for Development Studies at Trivandrum (UN 1975:65-70) could draw no meaningful conclusions from the existing survey results and only suggested that "there is likely to have been some reduction in inequalities in income from land in Kerala as a whole as the result of the abolition of tenancy."

A survey conducted by the Reserve Bank of India revealed that in 1961 the distribution of assets (mainly land) held by households in the rural sector was more unequal in Kerala than in any other state except Andhra Pradesh (Murdeshwar 1966:1183). Another subsequent survey by the same agency showed, however, that by 1971 the distribution of assets in rural households improved in Kerala and deteriorated in West Bengal (Pathak, Ganapathy and Sarma 1977). Mencher (1976:164) points out that the land reform measures in Kerala have succeeded in giving actual rights of ownership to many former tenants (thus creating a large lower middle class in rural areas) but have hardly changed the economic position of the landless laborers who represent about 30 percent of the total population. These laborers have gained the right to ownership of 1/10 acre of land around their huts, but it has added little to their productivity.

The average wage rate of agricultural laborers was higher in West Bengal than in Kerala in the 1950s, but the rate in Kerala increased faster, surpassing that in West Bengal in the 1970s (Madhya Pradesh 1961:111; K. Bardhan 1977). However, the available reports about wage rate changes in Kerala are somewhat contradictory. Bardhan (1977:1066-71) presents sample survey data from two different sources which show that the rate of increase of the average wage of male agricultural laborers from 1956-57 to 1970-71 was higher in Kerala than in West Bengal and most other Indian states. She attributes the higher rise in Kerala primarily to the organized bargaining power of agrarian trade unions in the state. The two districts of Kerala that experienced the largest increase in wage rates for agricultural labor during the 1960s belonged to the Kuttanad regions where an agricultural labor union was formed by the Community Party of India as early as 1939 (Jose 1979). Yet a detailed study of the Kuttanad region led Panikar (1972:35) to conclude that although this

region paid the highest money wages in Kerala, there was actually a steady decline in the real wages of agricultural laborers there from 1944-45 to 1967-68. As apparent from these varied findings and conclusions, there does not seem to be any clear evidence of a significant redistribution of income in Kerala due to the change in wage rates at least up to the end of the 1960s.

It is likely, however, that the economic condition of the agricultural laborers in Kerala has been improving rapidly since the early 1970s. Through the 1960s the focus of agrarian movements in Kerala was on tenancy reform and land ceilings rather than on wages. The passing of the 1969 Land Reform (Amendment) Act stimulated the formation of Karshaka Thozhilali (agricultural labor unions) in many parts of Kerala. Out of the 59 such unions registered up to July 1974, 39 have been registered since January 1970 (Mencher 1973:5). Kerala was the first state in India to pass a bill, in 1974, providing pension benefits (besides security and better working conditions) to agricultural laborers. In West Bengal also, although various land reform legislation had been passed earlier, the current Left-Front government (dominated by the Communist Party of India--Marxist) did not undertake radical measures to improve the status of agricultural laborers until 1977 (Sen Gupta 1979; Roy Choudhury 1980). Whether or not such measures succeed in bringing about significant improvements in income distribution in either state, they certainly have no bearing on the preexisting mortality differential. In an international cross-sectional analysis Rodgers (1979:56) found that life expectancy may be between 5 to 10 years lower in a relatively inequalitarian country than in a more egalitarian country and concluded that income distribution is consistently and strongly related to mortality. The available data from Kerala and West Bengal do not support this finding.

V. INDUSTRIALIZATION AND URBANIZATION

Up to at least the mid-1960s West Bengal was the most industrialized state in India in terms of capital investments and number of persons employed in factories, and Kerala was one of the least industrialized. By 1977-78 West Bengal had slipped behind Maharashtra and Gujarat (Sen Gupta 1979:29; Gooptu 1980), while Kerala's relative position remained virtually unchanged. The National Council of Applied Economic Research (NCAER 1967:60-62) estimated that the contribution of the manufacturing industries sector to the net domestic product increased from 13.1 percent to 23.7 percent in West Bengal during the period 1950-51 to 1960-61 and decreased from 16.1 percent to 15.8 percent in Kerala during the same period. The proportion of the workforce in the manufacturing industry is not very different in the two states. In 1960-61 it was 19.7 percent for Kerala and 18.9 percent for West Bengal, while the all-India average was 11.2 percent (Singh 1974:54-55). In Kerala, however, about one-half of the working force in industry is engaged in household enterprises, which process agricultural and other primary products with traditional labor-intensive techniques (UN 1975:81). In West Bengal the proportion of factory-laborers is much higher.

The situation is similar with respect to urbanization. In 1971, 24.8 percent of the West Bengal population was urban, while the corresponding figure for Kerala was 16.2 percent. As shown in Table 14, at least since 1921 the percentage of urban population in West Bengal has always exceeded the Indian average and the percentage in Kerala has always been lower than the average.

Table 14. Urban population as a percentage of total population, 1921-71.

	Kerala	West Bengal	India
1921	8.7	14.4	11.2
1931	9.6	15.3	12.0
1941	10.8	20.4	13.9
1951	13.5	23.9	17.3
1961	15.1	24.5	18.0
1971	16.2	24.8	19.9

Source: Bhattacharjee and Shastri (1976:90) compiled from census of India publications.

Rural and urban areas differ less in Kerala than in West Bengal. In some rural areas of Kerala the density of population is so high and the network of road systems is so extensive that the boundary between rural and urban loses much of its meaning. The Census of India has accepted the following three criteria for considering an administrative unit as urban: (1) population size over 5,000; (2) population density over 400/sq. km.; and (3) nonagricultural population over 75 percent. There are many administrative units in Kerala known as "revenue villages," which satisfy the first two criteria but are still considered rural because their nonagricultural population constitutes less than 75 percent of the total population. This explains why, for example, in 1971 the average village population in Kerala was an extraordinary 14,102, while the corresponding averages for West Bengal and India were 876 and 762. Moreover, greater availability of facilities (such as electricity) in rural areas of Kerala make them less distinguished from urban areas.⁸ So the difference in urbanization between Kerala and West Bengal, as reflected in Table

14, should be interpreted with proper qualifications. Nonetheless, urbanization, as traditionally defined, is not related to the observed mortality differential between the two states.

VI. HEALTH FACILITIES AND THEIR UTILIZATION

The types and numbers of medical and public health facilities and medical and paramedical personnel levels in Kerala and West Bengal (compared in Table 15) tend to balance out: while West Bengal has higher doctor (allopathic)/population ratio than Kerala, the latter has higher nurse/population ratio. Kerala has a clear advantage in primary health centers, however. Primary health centers are the main providers of medical and public health facilities in the rural areas of India. Each administrative unit known as a Block with a population of around 100,000 is supposed to have one primary health center and a number of subcenters. By 1977-78 Kerala had 163 primary health centers in its 144 Blocks and West Bengal had 316 in its 335 Blocks. All centers in Kerala had met their quota of two doctors in 1973. Only 30 percent of those in West Bengal had done so in 1970, and, as recently as 1977, 10 percent of West Bengal's centers still had not yet filled their quota. This is remarkable in view of the lower doctor/population ratio in Kerala. Apparently, the West Bengal government found it more difficult than the Kerala government to attract doctors to work in the rural primary health centers. Perhaps the same reasons also account for the lesser number of subcenters in West Bengal

Table 15. Selected indexes of medical facilities in Kerala and West Bengal in the 1960s and 1970s. (Figures in parentheses denote year.)

Index	Kerala	W. Bengal	Source
Beds in government and private allopathic hospitals and dispensaries per 100,000 population	72(1960)	83(1961)	Kohli (1977:121)
	85(1965)	85(1965)	India CBHI (1969)
	90(1971)	79(1971)	India CBHI (1976:86-7)
	87(1973)	76(1973)	India CBHI (1976:142)
Persons per registered allopathic doctor	3981(1973)	1747(1970)	Cassen 1978
	2656(1977)	1732(1977)	India CBHI(1978:54)
Persons per registered nurse	5148(1971)	8785(1971)	India CBHI(1976:142)
	3260(1976)	7544(1976)	India CBHI(1978:54)
Persons per registered ayurvedic doctor	2308(1977)	9930(1977)	India CBHI (1978:52-3)
Persons per registered homeopathic doctor	8394(1977)	2998(1977)	India CBHI (1978:52-3)
Primary Health Centers (PHC) with at least 2 doctors (%)	100 (1973)	30 (1970)	Cassen 1978
	100 (1977)	90 (1977)	India CBHI (1978:66-7)
Subcenters per PHC	10.8(1973)	4.6(1970)	Cassen 1978
	11.0(1977)	6.2(1977)	India CBHI (1978:66-7)

compared to Kerala. In 1977 there were 11.0 subcenters for each primary health center in Kerala while the corresponding figure for West Bengal was only 6.2.

There is little difference in the per capita government expenditure for health in the two states--Kerala's expenditure being slightly higher than West Bengal's in most years (Table 16). The proportion of government expenditures on indigenous medical systems was not significant in any state.

In both Kerala and West Bengal indigenous medical facilities are quite popular, particularly in rural areas.⁹ They are supported to some extent by the state governments. In Kerala the ayurvedic system is more popular than the homeopathic system; in West Bengal the reverse is true.

Table 16. Per capita government expenditure on medical care and public health (Rupees)*

	Kerala	W. Bengal	India	Source
1959-60	2.5	2.4	N.A.	India CBHI (1963:203-13)
1960-61	2.8	2.4	N.A.	India CBHI (1963:203-13)
1963-64	3.7	3.3	2.6	P. Bardhan (1974:1297)
1971-72	7.2	6.7	6.4	India CBHI (1976:168)
1972-73	8.6	8.7	N.A.	India CBHI (1969:13)
1973-74	8.7	7.6	7.7	India CBHI (1976:165)
1975-76	14.1	12.3	10.6	India CBHI (1978:23)

* Public health excludes sewerage and water supply.

Prevention of Epidemic Diseases

No accurate data are available to compare the prevalence of an incidence of mortality from epidemic diseases in Kerala and West Bengal. Epidemics of cholera, plague, malaria, and smallpox are known to have occurred in both states at least since the middle of the nineteenth century. Although preventive programs such as vaccination and inoculation against smallpox and cholera seem to have been equally extensive in recent years (India CBHI 1976:70), preventive actions against infectious diseases were initiated at a much earlier date in Kerala. The native rulers of Travancore and Cochin (parts of present Kerala), supported by Christian missionary institutions, took a more active role in encouraging public health measures than the British rulers and zamindars (landlords) of West Bengal. The former enforced sanitary measures in temples, bazaars, and other public places and developed a para-medical public health and sanitation infrastructure from the second half of the nineteenth century (Mitra 1978:232). As early as 1865-6, in the ceremony that opened Trivandrum Civil Hospital, the Maharaja of Travancore made the following statement:

I take this opportunity earnestly to impress this fact on the minds of all my native subjects and to urge them to seek for themselves, for their children, for their friends, and for their servants, the great protection of vaccination. They will see the strength of my conviction in the fact that there is no member of my own family that has not had this protection conferred at an early age. (Nagam Aiya 1906:524-25).

There is no evidence of comparable interest in promoting public health among the rulers and elites of West Bengal, although Calcutta, its capital city, was the seat of the first modern medical institution in India.

Utilization of Health Care Facilities

There is clear evidence that the people in Kerala use the available medical facilities much more than those in West Bengal do. Although the total population in Kerala is only about one-half that in West Bengal, the absolute number of patients admitted to hospitals and dispensaries was higher for Kerala in both 1959 and 1964 (years for which data are available). The number

Table 17. Number of patients treated in selected years.

	<u>All Diseases</u>			
	<u>Outpatients</u>		<u>Inpatients</u>	
	<u>Kerala</u>	<u>W. Bengal</u>	<u>Kerala</u>	<u>W. Bengal</u>
1959	6,008,925	6,242,255	355,820	286,616
1964	9,693,317	9,461,311	532,327	436,915
	<u>Pregnancy and Childbirth</u>			
	<u>Outpatients</u>		<u>Inpatients</u>	
	<u>Kerala</u>	<u>W. Bengal</u>	<u>Kerala</u>	<u>W. Bengal</u>
1959	169,611	90,584	60,281	121,434
1964	337,826	141,979	86,592	194,146
	<u>Diseases of Early Infancy</u>		<u>(Out- and in-patients combined)</u>	
	<u>Kerala</u>	<u>W. Bengal</u>		
1961	39,952	8,178		
1970	29,947	12,879		

Sources: For 1959 India CBHI (1963:150-51); for 1964 India CBHI (1968:153); for 1961 and 1970 India CSO (1979b).

of outpatients was slightly lower for Kerala in 1959 and slightly higher in 1964 (Table 17). The differences in number of women outpatients in connection with pregnancy and childbirth and diseases of early infancy are sharper.

Significantly greater utilization of preventive and curative medical facilities in rural areas in Kerala compared to rural areas in West Bengal is reflected in the percentages of institutionalized births and deaths and also in the percentages of births attended by trained personnel (Tables 18 and 19).

Table 18. Percentages of institutionalized births and deaths in rural and urban areas, 1964-65.

	Kerala		W. Bengal		India	
	Rural	Urban	Rural	Urban	Rural	Urban
Births	13(1)	32	6(4)	50	3	30
Deaths	8(1)	1(1)	3(5)	13(6)	2	12

Source: India CS (1971:83-86); from NSS 19th Round July 1964-June 1965.

Figure in parentheses denotes rank order among 17 states in descending order.

Table 19. Percentages of total births attended by trained personnel in rural and urban households, 1964-65.

Types of Attendants	Kerala		W. Bengal		India	
	Rural	Urban	Rural	Urban	Rural	Urban
Physician or qualified nurse	16(1)	35(5)	3(7)	42(3)	5	30
Trained dai or midwife	9(3)	14(8)	9(4)	21(2)	4	16

Source: India CS (1971:83-88) from NSS 19th Round, July 1964-June 1965.

Figure in parentheses denotes rank order among 17 states in descending order.

In 1964-65 rural Kerala was foremost among the states of India in institutionalized births (13 percent) and deaths (8 percent), whereas West Bengal ranked fourth (6 percent) and fifth (3 percent) in births and deaths, respectively. During the same year rural Kerala was also foremost among the states in births attended by physicians or qualified nurses (16 percent), whereas rural West Bengal was seventh (3 percent). West Bengal was in a more favorable situation than Kerala with respect to institutionalized birth in urban areas; but since more than three-quarters of the population in both states live in rural sectors, the overall percentages of institutionalized births and births attended by physicians or qualified nurses were considerably higher in Kerala.

It seems plausible that greater utilization of medical facilities--both preventive and curative--in Kerala is a major determinant of the mortality differential between Kerala and West Bengal. The question arises: why do the people in Kerala utilize the available medical facilities more than the people in West Bengal, particularly in rural areas? It naturally leads us to a comparative analysis of the accessibility of medical facilities in the two states.

Accessibility of Medical Facilities

One major reason for more effective utilization of medical facilities in Kerala is their easier accessibility to the people living in rural areas. The distribution of health centers in rural Kerala is better than that in rural West Bengal. The accessibility of these centers depends mostly on their "catchment" areas and transportation facilities. The average catchment areas of primary health centers in Kerala and West Bengal do not differ much (about 239 sq. km. in Kerala and 179 sq. km. in West Bengal in 1977-78). But there

are large differences among the catchment areas of the subcenters. The average catchment area of the subcenters was about 22 sq. km. in Kerala and 99 sq km. in West Bengal in 1977-78 (India CBHI 1978:66-67).¹⁰ The difference is partly due to the higher population density in Kerala (549/sq. km. in 1971) than in West Bengal (400/sq. km. in 1971). But it is primarily connected to the fact that the average number of subcenters attached to each primary health center is much higher in Kerala (Table 15).

Not only do more people in rural Kerala live closer to the health centers, they also have better transportation facilities for visiting these centers. Moreover, these transportation facilities make it easier for health extension personnel to visit households. The road network in Kerala is more extensive than that of West Bengal. In 1974-75 the road lengths per 100 sq. km. were 301 km. in Kerala and 64 km. in West Bengal (West Bengal 1978: 101-103).¹¹ The ratio of public service vehicles to population is much larger in Kerala than in West Bengal.¹² The water transportation in Kerala is also more extensive.¹³

If medical facilities are more accessible to the inhabitants, they are expected to better utilize them. But are there other factors responsible for better utilization of medical facilities in Kerala than West Bengal? Moreover, what led to the improved distribution of medical and other social services in Kerala? In an attempt to answer these questions I shall discuss below in some historical depth the structure of the educational system and the political awareness of rural poor in the two states.

VII. LITERACY AND STRUCTURE OF THE EDUCATIONAL SYSTEM

West Bengal ranks higher than average among Indian states in terms of literacy, but Kerala far out-distances all other states. Sixty percent of the population of Kerala were literate in 1971, compared with 33 percent in West Bengal and 30 percent in India (Table 20). Kerala's superiority in female

Table 20. Percentage literate by sex, 1951, 1961, and 1971*

	M A L E			F E M A L E			M A L E A N D F E M A L E		
	Kerala	W.Bengal	India	Kerala	W.Bengal	India	Kerala	W.Bengal	India
1951	50 (1)	34 (2)	25	32 (1)	12 (3)	8	40 (1)	24 (2)	17
1961	55 (1)	40 (3)	34	39 (1)	17 (3)	13	47 (1)	29 (4)	24
1971	67 (1)	43 (4)	40	54 (1)	22 (4)	19	60 (1)	33 (5)	40

Source: Bhattacharjee and Shastri (1976:72-74) compiled from various Census of India publications.

Figure in parentheses denotes rank order among 15 major states in descending order.

* Total population used for calculating percentages includes population in the age group 0-4.

literacy is even more marked. In 1971, 53 percent of females in rural Kerala were literate compared with estimates for West Bengal and rural India of only 15 percent and 13 percent respectively (Mitra 1979:7).

There is evidence from several countries that maternal education plays a major role in determining the level of infant and child mortality (Caldwell 1979:396-400).¹⁴ The data for 1971-73 on crude death rates and percentage of literates in the rural areas of two districts of Kerala indicate that the districts of Kerala that belonged to the Malabar area of the former Madras

state all have higher crude death rates and lower proportions literate than those districts that belonged to the former native states of Travancore and Cochin (Table 21). A high correspondence between the rank orders of the districts by crude death rate and by percentage literate indicates a strong negative correlation between literacy and mortality level.

Table 21. Estimates of crude death rates and percentage literate in the rural areas of the Districts of Kerala, 1971-73

<u>Districts</u>	<u>Crude Death Rate (CDR)</u>	<u>Percentage Literate (PL)</u>	<u>Rank in CDR (in descend- ing order)</u>	<u>Rank in PL (in ascend- ing order)</u>
<u>A. Travancore-Cochin</u>				
Trivandrum	7.6	62	8	6
Quilon	7.7	63	7	7
Alleppey	8.4	70	6	10
Kottayam	6.1	71	10	9
Ernakulam	7.1	65	9	8
Trichur	8.6	61	5	5
<u>B. Malabar</u>				
Palghat	12.9	47	1	1
Malappuram	11.9	48	2	2
Kozhikode	8.8	58	4	4
Cannanore	9.1	55	3	3
<u>Kerala State</u>	<u>9.2</u>	<u>60</u>		

Source: Kerala BES (1975)

Literacy decreases mortality levels by increasing awareness about the need and right to use public facilities, including medical facilities. (Panikar 1979:1809). Higher female literacy in Kerala has contributed significantly toward higher utilization of maternal and child health services by the women

of the state (Tables 17-19). They are also less inhibitive regarding physical examinations and more open to traveling to the health centers without male escorts. Indirectly, higher literacy in Kerala has contributed, along with a few other favorable conditions, a higher level of political participation of the rural poor, which, in turn, has forced the state government in the post-independence era to cater to their health needs along with other needs.

The Educational Traditions in the Two States

West Bengal is traditionally known as a very advanced state in India regarding higher education. The pioneering efforts of a number of British and Bengali educators at Calcutta, the capital of West Bengal, during the nineteenth century led to the establishment of modern schools and colleges there. The first woman Bachelor of Arts degree holder in India graduated from the University of Calcutta in 1883. How, then, did the literacy in Kerala, particularly among women, become higher than in West Bengal? The answer lies in the fact that at all times--pre-British, British and post-Independence--primary level education and the education of women have been emphasized in Kerala, whereas, particularly during the British rule but also after Independence, the educational structure in West Bengal was elitist and urban-oriented.

During the first five centuries of the Christian era, most of the area belonging to the present Kerala state placed great emphasis on providing education for the masses using temples as centers (Ramkumar and Nair 1979). Non-formal education was imparted to both men and women through Puranic stories and devotional songs. The matriarchal Nayar caste of Kerala was particularly interested in the education of women (Nagam Aiya 1906:474). There was no comparable development of education through temple culture in West Bengal. There was no matriarchal caste in West Bengal interested specifically in the educa-

tion of women. Indigenous schools gradually grew up in both states, but by the end of the 19th century every village in Kerala reportedly had a school (Nagam Aiya 1906:455), while in West Bengal only one village out of five had one (Mitra 1967:445).

During the British rule of India circumstances favored the promotion of primary education in Kerala and of higher education in West Bengal. The native rulers of Travancore and Cochin were very interested in the spread of education and provision of health services among the masses of population. As early as 1817 the queen of Travancore announced "that the State shall defray the entire cost of the education of its people in order that there may be no backwardness in the spread of enlightenment among them, that by diffusion of education they become better subjects and public servants..." (cited in UN 1975:125).

The educational efforts of the native rulers of Travancore and Cochin were greatly influenced by Christian missionaries who pioneered the modern system of education both among the Christians and non-Christians and particularly among the poor and among women (Nagam Aiya 1906:445-480; Velu Pillai 1941:79). In 1971, 21 percent (the highest in India) of the population of Kerala were Christian compared to less than 1 percent in West Bengal. The Syrian Christian missionaries are reported to have come to Kerala in the 1st century A.D. but the Christian activities in education effectively started in the early 19th century through the Protestant English missionaries. The native rulers and the Dewans (ministers) responded to the efforts of missionaries favorably. The first school for girls in Travancore was started by the missionaries in 1819. In 1887 the Government of Travancore opened a school to train female teachers. In the census of 1901 Travancore was foremost among

Indian states in female education.

Educational development in West Bengal under the British rule took a different course. The introduction by the British of a system of land revenue, known as "permanent settlement," in the Bengal Presidency (of which West Bengal was a part) called into existence a large intermediary class with heritable tenure on land holdings. This class was generally interested in collecting rents from rural tenants and did very little to promote educational advancement among the tenants and laborers. Moreover, the "permanent settlement" impeded the levy of any new tax on land, making it difficult for the zamindars (landlords) to finance welfare measures for the rural poor, even if they were so inclined (Mitra 1967:424-50). They were attracted toward the Calcutta metropolis--the seat of the British power in India--and, along with a growing middle class of professionals, became strong advocates of secondary education in the English language rather than primary education in the vernacular. Previously it was believed that secondary education in English was given higher priority by the British administrators and traders because they needed the services of native English-educated clerks, but modern historians argue that it was more a response to the high demand for such education from middle-class Bengalis of the Calcutta metropolis eager to qualify for the new jobs created by the British as well as to assimilate new ideas, thoughts, and political traditions of the Western countries (Mukherjee 1968:14-45).¹⁵ As a result there was a bias toward secondary education in urban areas in the allotment of educational funds. While primary education in the rural areas of Bengal remained neglected, the founding of Hindu College in Calcutta in 1817 was followed by a rapid growth of such institutions in the Calcutta metropolis (Mitra 1967:436). A few Christian missionaries and philanthropists campaigned

for primary education in the vernacular, but the majority tended to support higher education in the English language.

There were some efforts by the Christian missionaries in the 1910s and 1920s to open primary schools for women in Calcutta and its vicinity but they yielded discouragingly poor results (Mitra 1967:452-53). Only children of the very poor castes attended these schools and their attendance was reportedly purchased, often by cash rewards for presence. The prevailing social order in Bengal prescribed early marriage of women and threatened educated women with the grim prospect of spinsterhood and widowhood. Not all caste Hindus were opposed to female education on principle. Some girls of aristocratic families were educated privately at home. But there was a general reluctance to entrust girls to Christian women teachers at the schools. The first girls school in Calcutta, which struggled to survive, was started in 1849 by a British philanthropist and government official named J. E. D. Bethune.¹⁶ In 1885 the government asked Iswarchandra Vidyasagar, a well-known Bengali educationist and social reformer, to open 20 girls' schools in four districts of Bengal. His untiring efforts bore almost no results, partly because of inadequate government financial support, partly because of social prejudice against female education.

Expenditure and Enrollment

The characteristic features that distinguished the educational structures of Kerala and West Bengal in the British era continued in the post-Independence era. The higher emphasis on education in Kerala is reflected in the higher educational expenditure. In 1960-61, the Kerala government spent 35 percent of its revenue on education, while the corresponding estimates for West Bengal and for India as a whole were both only 19 percent (Rudolph and Rudolph 1969:1040).¹⁷ The Greater priority given to lower-level edu-

cation in Kerala is reflected in enrollment and expenditure figures by level of education shown in Tables 22-23. During the period of 10 years from

Table 22. Percentage of children enrolled in school among the total population of age 6-10 years, and 11-13 years, 1978

	Boys			Girls			Total		
	Ker.	W. Ben.	India	Ker.	W. Ben.	India	Ker.	W. Ben.	India
6-10 years	82	77	77	86	58	55	86	68	66
11-13 years	80	48	54	74	32	32	77	40	50

Source: India NCERT (1980:62-63)

Table 23. Percentages of educational expenditure on primary, secondary and university education, 1969-70, 1970-71, 1975-76 and 1976-77

	Primary			Secondary			University*		
	Ker.	W. Ben.	India	Ker.	W. Ben.	India	Ker.	W. Ben.	India
1969-70	59	38	46	21	40	29	5	16	10
1970-71	58	32	44	21	31	30	7	10	10
1975-76	57	41	—	25	40	—	12	14	—
1976-77	56	41	—	26	37	—	12	15	—

Sources: 1969-70 and 1970-71 percentages calculated from actual expenditure figures for 1969-70 and revised budget estimates for 1970-71 provided by India MESW(1972); 1975-76 and 1976-77 percentages calculated from actual expenditure figures for 1975-76 and revised budget estimates for 1976-77 provided by Kerala (1977) and West Bengal (1977).

* Excluding technical and engineering colleges.

1960-61 to 1970-71, the per-pupil expenditure on primary education more than doubled in Kerala; this increment was more than 50 percent above the national average (Nair 1974).

The traditional higher emphasis on female education in Kerala than in West Bengal was also maintained during the post-Independence years. This is reflected in the enrollment percentages of female students at three levels of school education in 1960-61, 1973 and 1978 (Table 24) and at two age groups in 1978 (Table 22). Female enrollment in Kerala at all these levels and age groups has always been higher than that in West Bengal with the difference greater at higher levels of education than at lower levels.

Table 24. Female enrollment as a percentage of all enrollment, by class level, 1960-61, 1973, and 1978

	1960-61			1973			1978		
	Ker.	W.Ben.	India	Ker.	W.Ben.	India	Ker.	W.Ben.	India
Classes I-V	46.8	35.9	N.A.	47.9	39.4	37.7	48.3	42.0	38.6
Classes VI-VIII	44.5	28.1	N.A.	46.5	36.0	30.8	46.9	39.1	32.8
Classes IX & up	42.1	24.6	N.A.	47.9	30.1	26.9	48.0	34.1	29.1

Sources: 1960-61 percentages calculated from India MESW (1972:47, 113) and other percentages cited from India NCERT (1980:62-63).

VIII. POLITICAL AWARENESS OF THE RURAL POOR

One reason why the medical facilities in Kerala are used more is that the people there are more aware of their rights to use these facilities. Mencher (1980) observed during her field investigation in Kerala that when a primary health center was short of a physician, there was a strong public demand for his/her immediate replacement while a similar situation in the neighboring state of Tamilnadu elicited no protest. It is my impression that the rural population of West Bengal is similar to that of Tamilnadu in this respect;

they seem to be generally too meek to demand services from government officials. The difference in the attitudes of the rural people in Kerala and West Bengal toward the health services may reflect differences in their general political awareness and participation. Although Kerala and West Bengal are the two states in India with longest periods of rule by the leftist political parties (mainly CPI and CPI-M), there are important differences in the historical and social contexts of the leftist movements, as well as in the influence of the leftist political parties among the peasants, in the two states.

By the time of Independence in 1946, the peasant movement led by the first agricultural labor union was formed in Kerala. In the early twentieth century, in order to reduce the power of the feudal chieftains of the Kuttanad region of Travancore, the King pursued a policy under which the ownership of rights on land was gradually conferred on tenants who, being relieved of the burden of rent payments, retained the surplus and reinvested it to improve agricultural production (Jose 1979). The tenants hired increasing numbers of casual laborers for money wages. The labor market swelled, and the growth of capitalism led to a polarization of classes in agriculture. A trade union was formed under the patronage of the left-wing leaders of the Indian National Congress who subsequently constituted themselves into the Communist Party of India (CPI). The task of organizing the agricultural workers in Kuttanad was taken up by the trade union leaders of the neighboring industrial town of Allepey. Slowly but steadily the trade union movement among agricultural workers spread from the Kuttanad region to other regions of Kerala since the 1950s but a real breakthrough occurred only after the end of 1970 (Mencher 1973). The peasant movement also started in the Malabar and Cochin regions as early as in Kuttanad but the main thrust of the movement until recently was general-

ly on tenancy reform and land ceilings rather than on agricultural wages. The better implementation of land reform legislation in Kerala than in other states of India is reported to be due to political pressure based on a long history of peasant movements in Kerala (U.N. 1975:53-64).

The policy of land tenure in West Bengal under the British administration was entirely different from that in Kerala, and no left-wing political party was active in rural West Bengal prior to Independence. The zamindars were not interested in improving agricultural production. The landless laborers earned their living not by earning wages but by becoming bargardars, or share-croppers. The extravagant life styles of the absentee zamindars, many of whom built luxurious houses in urban areas, led to a gradual impoverishment and disintegration of the peasantry. There were a few mass uprisings in the 1920s and 1930s by the peasants striving to regain their rights to land, but there was no political party to turn them into a trade union movement. Calcutta was the center of British rule in India, and the nationalist struggle of the Indian National Congress party in Bengal was too concentrated in Calcutta to pay attention to what was happening in the countryside. There was only a handful of communists in West Bengal, and they had no influence among the peasants. Even in 1948 when the CPI held its congress in Calcutta, the social base of the Party was still the middle-class intelligensia in the cities and towns, and the industrial belt in the Calcutta metropolitan area (Sen Gupta 1972: 149-53).

When the United Front government assumed power in West Bengal in early 1967 with the CPI-M as the dominant political party, the government was initially biased in favor of the factory and middle-class worker, but gradually changed its policy to favor the peasantry. The success of the CPI-M in

widening its social base among the peasantry was demonstrated in its winning of the majority of the rural seats in the 1977 state assembly elections (Sen Gupta 1979:70,97).

The different degrees of penetration of leftist political parties among the peasantry in Kerala and West Bengal were partly due to the difference in the caste structure in the two states. The caste system in Kerala has traditionally been very rigid. Until recently, the untouchables in the state were forbidden entry into some hindu temples and were required to keep a minimum distance away from not only the upper caste Brahmins and the Nayars but also from lower caste Ezhavas. The rigidity of the caste system led to various caste movements in Kerala in the 1930s and 1940s with the support of national leaders like Mahatma Gandhi. The Kerala unit of the CPI, which was organized in 1939 by the leftist faction of the Indian National Congress (INC), took advantage of such movements in Kerala and became popular among the untouchables and lower castes that constitute the rural and urban proletariat of the state. E.M.S. Namboodiripad, an undisputed leader of the CPI and subsequently of the CPI-M in Kerala, was a Namboodiri Brahmin by birth but himself became president of the Namboodiri Yojekshema Maha Sangh--the progressive caste organization in his own community. He was able to use this and other reformist caste organizations in expanding the rural social base of the communist parties in Kerala (Sen Gupta 1972:173-81).

For various reasons the caste system in West Bengal has always been much more fluid than in Kerala and other states of India. Religious reformers like Chaitanya Deva, who more than 500 years ago led a rebel religious movement preaching equality of all men and women, were very influential in the state. The synthesizing humanism of Buddhism, the Bhakti Cult of Chaitanya Deva, and

the love cult of Ramakrishna gave rise to a spiritual egalitarianism but did not lead to egalitarianism in the economic and social spheres. The sense of identification among castes at the spiritual level perhaps mitigated the conflicts among castes at the material and social levels. C.R. Das, a prominent Bengali leader of the INC Party, declared in his presidential address to the Party's 1923 session that the concept of class conflict was "un-Indian" (Sen Gupta 1972:143-52).

It is not easy to disentangle the historical processes which have contributed to the difference in the political awareness and participation of the rural poor in Kerala and West Bengal. We have alluded to the differences in the policies regarding education and land tenure and in the structure of the caste system. Further research in the social histories of the two states may bring to light other significant factors. Such research has demographic significance if it is accepted that the use of health and other public services by the rural poor depends heavily on their political awareness and participation and, in turn, has significant demographic consequences.

IX. CONCLUSION

A comparative analysis of different types of mortality measures of Kerala and West Bengal estimated from varied sources shows consistently that the mortality level in Kerala has been generally lower than that in West Bengal, at least since 1911-20. Since the early 1970s, the difference has widened. The available information about cause of death is inadequate to explain the mortality differential. Environmental and hygienic conditions are

more favorable in Kerala than in West Bengal, but the difference does not seem to be great enough to explain a significant part of the mortality differential.

Relatively lower mortality in Kerala than in other Indian states has been attributed by Ratcliffe (1978:124) to a higher nutritional level in Kerala, but the available empirical evidence suggests that per capita consumption of food in Kerala has been lower than that in West Bengal and that the distribution of food in Kerala is also less egalitarian than in West Bengal. Differences in income do not seem to be important in explaining the mortality differential. Usually higher income is associated with lower mortality (Rogers 1979:56), but per capita income has always been lower in Kerala than in West Bengal. Nor do the processes of industrialization and urbanization seem to have explanatory power: Kerala has always been less industrialized and less urbanized (at least by the census definition) than West Bengal.

There is little difference between Kerala and West Bengal in the usual indexes of medical facilities such as the number of hospital beds or allopathic doctors, but the rural areas of Kerala have always had better medical facilities than the rural areas of West Bengal. Also, there is good evidence that the people in Kerala use the available medical facilities much more than in West Bengal. Smaller catchment areas of health centers and better transportation facilities in Kerala may be contributing factors. But a major factor appears to be the higher literacy in Kerala, particularly among females. Literacy is likely to increase awareness about the need and the right to use public facilities, including health facilities. Historically, the structure of the educational system has been geared in favor of primary education in Kerala and in favor of higher education in West Bengal. The re-

spective biases continued even after leftist political parties gained control of the two state governments. They are reflected in the recent enrollment and expenditure percentages by different level of education.

Although not substantiated by any systematic study, there is reason to believe from casual reports that the rural poor in Kerala are more aware of their rights to use medical and other public facilities than those in West Bengal. Such a difference in awareness may arise from the historical difference in political and social movements in the two states.

The mortality differential between Kerala and West Bengal can be better interpreted if a distinction is made between economic and social development. Economic development is usually measured by per capita income and income distribution. Development of social services, such as education, health and transportation, through public policy measures may be designated as social development. It is clear from the evidence presented in this paper that West Bengal is characterized by a relatively higher level of economic development and Kerala by a relatively higher level of social development. This difference has persisted for at least the last few decades, although there has recently been a narrowing of the difference in economic development. The lower mortality level in Kerala can be attributed mostly to its higher social development and partly to its favorable environmental and hygienic conditions.

Notes

1. In a report (November 1980) prepared by the Indian Council of Social Science Research and the Indian Council of Medical Research, it has been stated that "Health for All" in India by the year 2000 means, among other indicators, a fall in the CDR from 15 to 9. Such a drop had actually occurred in Kerala by 1970.
2. The crude death rate (CDR) is the annual number of deaths per 1,000 population. It does not take account of the age distribution of population. The main reason why the CDR for Kerala is less than the average CDR for the developed countries is that the proportion of elderly people is higher in developed countries and their deaths constitute a higher proportion of total deaths than in Kerala. But the differentials in CDR among the Indian states reflect more or less the differential mortality in all age groups, since there is not much difference in their age distribution.
3. West Bengal is reported to have as many as 1.1 million ponds and tanks, most in poor condition (Roy Choudhury 1980:2173).
4. Razzell (1974:13-14) argues that it was an improvement in personal hygiene that was responsible for the reduction in mortality in London between 1801 and 1841. According to him, the use of soap in keeping the body and clothing clean was effective in preventing intestinal and other diseases. From my own observations, I would infer that the poor people in Kerala generally keep their bodies and clothing cleaner than the poor people in West Bengal.
5. During my visit to a Kerala village household in 1980, I was offered the milk of a large green coconut. The discarded shell was picked up by a small boy of about 5 years who took it quietly to a corner of the household compound, cut it in half with a knife and quickly ate all of the soft kernel, apparently unnoticed by any other member of the household. It is extremely difficult to design a nutrition survey that can take account of consumption of such items, which is quite common.
6. The relatively inequalitarian distribution of food in Kerala, as compared to West Bengal, is also borne out by other data. In 1972-74, the calorie and protein intakes per capita per day were lower in Kerala than in West Bengal for the income group "less than Re. 1 per day" and "Rs. 1-2 per day," but among the higher income groups, "Rs. 2-5 per day," both calorie and protein intakes were higher in Kerala than in West Bengal. As regards calorie intake, Kerala had the highest ranking among nine states of India for income group "Rs. 2-5 per day," but for the income group "less than Re. 1 per day" its rank order was the lowest (India NIN 1975:147). In 1971-72, while the overall average calorie intake was lower in Kerala than in West Bengal, the average per capita intake of the members of households with monthly income exceeding Rs. 100 was higher for Kerala (India NSSO 1975a, 1975b and 1975c).

7. A survey made by the Reserve Bank of India in 1961-52 showed that 16.3 percent of the rural households in Kerala reported receipt of remittances, while the corresponding figure for West Bengal was only 4.0 percent. The average amount received per household was Rs. 64 for Kerala and Rs. 18 for West Bengal (India RBI 1965:1884). Remittances from outside Kerala accounted for about 10 percent of the total net receipts from other sources per rural household (JN 1975:8). Remittances made by the non-Bengali workers living alone in metropolitan Calcutta West Bengal to their families living in other states amount to as much as 55 percent of average income for 44 percent of the total work force in metropolitan Calcutta (Lubell 1974:73).
8. In Kerala, 96 percent of villages had electric connections as of March 1979, while the corresponding figure for West Bengal was only 29 percent (India CSO 1977:138).
9. Among indigenous medical systems, ayurvedic and homeopathic are relatively popular in Kerala and West Bengal. The ayurvedic system is derived from the ancient Hindu scripture, the "Ayurveda." It is widely believed in India that the homeopathic system was originally imported from the US, although it is doubtful whether it was ever known or practiced by more than a minute fraction of the US population.
10. Within Kerala, however, there is a large variation among its three natural regions regarding the catchment areas of health centers. The infant mortality rates are positively correlated with size of catchment area (Krishnan 1976:1221).
11. In 1974-75, the road lengths per 100,000 population were 551 km. in Kerala and 127 km. in West Bengal (West Bengal 1978:101-103).
12. The total number of registered public service vehicles including taxis on 31 March, 1976 was 20,919 in Kerala and 18,752 in West Bengal. The population in Kerala was less than one-half that in West Bengal.
13. The backwaters, rivers, and canal system in Kerala constitute a navigable inland waterway of about 1920 km., more than one-fifth of the total length of India's inland waterways (Chaitanya 1972:5).
14. Besides providing data from Ibadan City, Nigeria, Caldwell cites supportive evidence from Ghana, Upper Volta, Niger, India (Greater Bombay), Bangladesh, Indonesia, the Philippines, the United States, and eight Latin American countries. In a regression analysis of data available for 36 countries in or about 1940 and for 120 countries in or about 1970, Preston (1986:304-06) has found that a 10 percent increase in literacy is associated with a gain in life expectancy of approximately two years and that a 10 percent gain in national income increases life expectancy by approximately one-half a year.

15. R. C. Majumdar, a reputable historian, wrote: "English education was introduced in this country, not by the British Government, but in spite of them" (Mukherjee 1968:14). Raja Ram Mohan Roy, a highly-respected social reformist, wrote in a letter of February 2, 1924 to Reverend Henry Ware of Cambridge, Massachusetts, that he felt himself "fully justified in stating that two-thirds of the native population of Bengal would be exceedingly glad to see their children educated in English learning." In 1835, the British Government declared that "all the funds appropriated for the purpose of education would be best employed on English education alone." It accelerated the growth of private institutions for higher education in Calcutta and its metropolitan region (Mitra 1967:434-43).
16. During the same period, a Hindu zamindar (landlord) and philanthropist, Jay Krishna Mukherjee, also gave a proposal to the government for opening a girls' school at Uttapara, a suburb of Calcutta, but this proposal was turned down as "premature and inexpedient" in view of the government's current policy of cutting down education expenditure (Mukherjee 1975: 155).
17. The percentages of government revenue spent on education in 1968-69 were higher but of the same rank order--Kerala 39 percent, West Bengal 22 percent, India 22 percent (India MESW 1972:3). Per capita expenditures on education in 1960-61 in Kerala, West Bengal, and India were Rs. 12 (\$1.50), Rs. 10 (\$1.25), and Rs. 8 (\$1.00), respectively (Rudolph and Rudolph 1969:1040).

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