Structural Change in Meghalaya- Theory and Evidence

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Abstract

Structural change which is inherent in an evolving economy refers to a long-term widespread transformation of the fundamental relationships among different parts and organic constituents of it, rather than micro scale or short-term change in output and employment. Short-term economic challenges that are managed with fiscal or monetary policies do not form part of the structural change. Structural change rather involves obsolescence of skills, vocations, and permanent changes in spending and production. In structural change, a subsistence economy is transformed into a manufacturing economy, or a regulated mixed economy is liberalized. Structural change is also initiated by policy decisions or through permanent changes in resources, population or the society. A current structural change in the world economy is globalization. The present paper in this regard is an attempt to have a close examination of the evolution of the concept by reviewing some of the important literatures and verify in the context of the state of Meghalaya whether there has been any such structural change. Although the study is severely constrained by availability of relevant data, it has been visualized that changes in population growth rate and its demographic attributes, economic participation and dependency ratios, sectoral distribution of income, infrastructural advancement, etc indicate to the structural change that is taking place in Meghalaya.

I. Theoretical Issues on Structural Change

Structure is defined as the fundamental conditions that are assumed as invariant for purposes of analysis and modeling, regardless of the nature of the model (Machlup 1967). It was also viewed by Machulp as synonymous to ‘composition that does not change easily’, referring mostly to the composition of basic macro-economic magnitudes, such as national product, investment, employment, exports, imports, etc. This feature of structure as composition is also evident in Ishikawa's (1987) definition of structural change, in which it is seen as ‘a change in the relative weight of significant components of the aggregative indicators of the economy, such as national product and expenditure, exports and imports, and the population and labor force’. The s*tructural change* of an economy is thus understood as a long-term widespread change of the fundamental structure, rather than micro scale or short-term change in output and employment. Short-term economic challenges that are managed with fiscal or monetary policies

do not form part of the structural change. Structural change takes place when a subsistence economy is transformed into a manufacturing economy, or a regulated mixed economy is liberalized. It can also be initiated by policy decisions or through permanent changes in resources, population or the societal relationship. Structural change involves obsolescence of skills, vocations, and permanent changes in spending patterns and mode of production. A current structural change in the world economy is globalization. The breakdown of communism, for example, was a political change that had had far-reaching implications on the economies dependent on the state-run Soviet economy.

Study on structural change has been an important tradition in the literature on economic theory. Though the phenomenon of structural change is as old as the very problems of economic development, the term 'economics of structural change' was until recently practically unknown (Silva and Teixeira, 2008). Some of the oldest important literatures on structural change that deserve mention are of Fisher (1939) and Clark (1940). Both of them looked at the patterns of the changes in sectoral employment. They put forward the idea that an economy passes through three stages of production: In the first stage the low-income countries are assumed to be dominated by primary production/extraction of raw materials through agriculture, mining, fishing, and forestry. After the first phase is over, the economy passes through the stage of industrial production in the form of manufacturing and construction. The final stage, which is the sign of economic maturity in the development process, is the stage of generation of high income through a large tertiary sector with the provision of services such as education and tourism. However, their thesis of the sequence of movement of economy from primary to secondary and then to tertiary sector may be more natural to relatively closed economies.

In the initial stage of development of economic theory, the literature could not provide a unified approach to the issue because of the complexities involved in it. But in the last decade Baranzini and Scazzieri (1990) and Landesmann and Scazzieri (1996) made some contributions in this regard. The latest contribution in this line is the work of Silva and Teixeira who made a compilation of most of the important works based on a review of 910 research papers comprising theoretical and empirical works by combining 9703 citations indexed in *Econlit* over the past four decades. Their work provided a basic framework in dividing the entire literature under four different categories: (I) Foundations of Structural Change (Classical Economists (1700-1870) and The Legacy of Schumpeter), (II) Formal Approaches to Structural Change and Economic

Growth, (III) Empirical and Historical Processes of Structural Change, and (IV) Recent Trends in Structural Change.

Foundations of Structural Change

Perhaps the earliest treatment to the study of the structure of a market-oriented economy is due to Sir William Petty who, in 1691, concluded that there is much more to be gained by manufacture than husbandry; and by merchandise than manufacture (Clark 1940). Although Classical Economists did not use the term 'structure' in any significant way, many authors like Turgot (1766), Steuart (1767) and Smith (1776) contended that the progress of wealth was intimately related to changes in the pattern of interaction among a few critical variables, which can be seen as distinct representations of the economic structure. Smith discussed relationship between the sectoral composition of the economy and the stage of development. Quesnay while making an analysis on the structure of the economy explored the general interdependence between economic sectors (1758). The study on the structure of an economy as the characteristic feature and interrelationship among various classes (labourers, farmers, landlords, manufacturers etc) became more prominent in the works of Ricardo (1817) and subsequently in Marx (1885). The importance of non-producible resources in the enhancement of wealth was emphasized by Ricardo while Marx considered structural dynamics through its schemes of extended reproduction. Veblen (1899) elaborately addressed and analyzed the changes in socioeconomic modalities, institutions, people's mindset and their habits of thought and action when a primitive (pre-industrial) economy evolves into an industrial and market-based economy. Schumpeter (1934) believed that structure of an economy had to change if there were to be long-term shifts in economic well-being. When there is technological competition among firms, innovation brings out structural change in the economy and helps in the formation of business cycles. In the middle of the 20th Century the importance of the growth of primary, secondary and tertiary industries, and of the shifts among them, were given prominence by Colin Clark (1940). The basic methodology of national accounting as outlined by Marshall in 1879 is based on the sectoral composition of the economy (Kenessey 2004).

Formal Approaches to Structural Change and Economic Growth

Even though growth brings out fundamental changes in the structure of an economy and the composition of its main aggregates, the theories on economic growth, especially in the

mainstream economics, were developed without having any reference to it. Both von Neumann (1945) and Sraffa (1960) viewed that production is a circular process in which commodities are produced by means of commodities. While describing economic system, Leontief (1941, 1991) explored the idea of general interdependence and circularity of production. Leontief (1953, 1970) in his model while discussing about horizontal-flow, supplemented his analysis with the specification of construction and delivery lags that incorporate the time structure of inter-sectoral flows. Boeke (1953) conceptualized the structure of an economy in the socio-economic dualism. Lewis (1954) analyzed the process of economic expansion in a dual economy where both the capitalistic and the subsistence sectors have interrelations. Sraffa (1960) demonstrated the possibility of the progress of an economy from a circular to a vertical one. Pasinetti (1973) also made analysis on vertically integrated sectors in the usual input–output scheme and examined meticulously the logical properties of the process of vertical integration. Richard Goodwin (1976, 1983) and Goodwin and Punzo (1987) provided a different approach to remove horizontal interdependencies in the Sraffa-Leontief system. A number of seminal works on structural change also dealt with horizontal and vertical representations of the economic structure (Hicks 1973; Pasinetti 1981, 1993). Andersen (2001) made an effort to endogenize demand and technology factors in Pasinetti's (1993) model, by transforming it into an evolutionary model with explicit micro-foundations. Similar effort to endogenize demand has been made by Gualerzi (2001). However, explicitly Baumol (1967) did not take demand into account in his seminal work but emphasized on unequal impact of technology among sectors leading to unbalanced economic growth.

Empirical and Historical Processes of Structural Change

In order to explain the observed processes of structural transformation the early literature on development economics devoted to exploration of theoretical arguments which were based on appreciative strands rather than on formal reasoning. Rostow (1960) in his growth theory mentioned the existence of structural discontinuities. The dual-economy model and big-push theory stressed the importance of sectoral differences in the growth process. Lewis (1954) made a distinction between traditional and modern sectors. Sectoral differences as a requirement for balanced growth were emphasized in the works of Rosenstein-Rodan (1943, 1961) and Nurkse (1953). While Rosenstein-Rodan argued on the complementarities among different industries for large-scale planned industrialization Nurkse was in favour of mutually supporting demand for

the promotion of a diversified increase in output. Hoffmann (1931, 1958) investigated the pattern of industrial growth described by the evolution of the relative weights between consumer and capital goods industries. Fisher (1939) made an analysis by decomposing the economy into primary, secondary and tertiary sectors. Similarly Kuznets (1961, 1971) in his empirical analysis of the theory of economic growth decomposed the economy by making classification into agriculture, industry and services. He found an association between growth of per capita income and shift in production structure (structural change). According to him the relationship so established was due to combined effect of changes in the (i) structure of consumer demand, (ii) comparative advantage and (iii) technology. Among these three, technology played a major role. Rosenberg (1963) tried to establish the link between investment and economic growth and highlighted the crucial role of capital goods in the stimulation of technological innovation. A number of studies using both cross-section and time series data were undertaken to examine the relationship between growth and changes in the economic structure [Chenery (1960), Chenery and Taylor (1968) and Chenery and Syrquin (1975)]. North (1981) opined that the structure of an economy is determined by the resource base, technology and institutions. The substantial content of a socio-economic system lies in its resource base in the short run and the natural endowments in the long run. Gunter (1998) provided an exhaustive review of the literature on the measurement aspects of structural analysis. Branson et al. (1998) while studying the patterns of development of 93 countries over the period from 1970 to 1994 used 45 macroeconomic indicators such as sectoral shares of GDP, trade intensity, financial market development, etc to measure economic structure.

Recent Trends in Structural Change

The emergence of the *New Economy* and the controversy regarding the impact of information and communication technologies on growth further provided stimulus to the debate on technical change and its impact on growth. A growing body of literature was developed as ‘Neo-Schumpeterian’ or ‘Evolutionary’ economics and has been accepted as an alternative approach to mainstream economics (Lucas 1988, 1993; Romer 1990; Grossman and Helpman 1991; Aghion and Howitt 1992). These economists have been putting stress on the idea of disharmony and competition in the growth process unlike mainstream economic theories based on the assumption of rational human behavior. Analysis on structural change have come to the fore as a powerful analytical tool that is capable of establishing links between changes at the

level of microstructures and higher-level changes, while providing, at the same time, a more realistic account of the process of technology adoption and its effects on the economy, by emphasizing the sequential and path-dependent nature of economic change. In particular, it provides a useful foundation for the study of the problems of adjustment and inter-temporal coordination brought on by technical progress that is totally neglected and taken for granted by the mainstream equilibrium approach. The strong connection between major technological breakthroughs, structural change and economic growth is analyzed in terms of technological systems, trajectories of technology and technological paradigms (Amendola and Gaffard 1998). Perez (1983, 1985) explored the relationship between technological trajectories and structural change introducing the concept of 'techno-economic paradigm'. David (1975, 1985) and Arthur (1988, 1989, 1994) showed that the occurrence of random events or 'historical accidents', particularly in the early phases of the introduction of a technology, might have a decisive influence on the long-run outcomes of the economy. Goodwin (1987) presented a model in which the impact of technology on the economy is transformed by the internal dynamics of the economic system, which reshapes the non-cyclical rate of emergence of a major innovation cluster into both business cycles and long waves. Assuming a capital stock 'vintage' structure Silverberg and Lehnert (1993) developed a Schumpeterian dynamic model (based on the Goodwin growth cycle) to conclude that 'clustering' of innovations is not necessary for generating long-waves but necessary for the process of arrival of new technologies to be stochastic. Silverberg (2002) presented a 'mosaic-avalanche' model based on percolation theory that illustrates the emergence of macro-innovations from a stream of incremental innovations, which are then transmitted to changes in sectoral structures and macro-economic performance. The conceptual framework of 'technology gaps' was also formalized by Verspagen (1991), Amable (1993), and more recently by Los and Verspagen (2006). Los and Verspagen developed a dynamic model in which the impact of innovation, learning and technology spillovers on output growth, convergence and structural change was analyzed.

In the recent past there have been some attempts to combine both supply-side and demand-side factors within the micro-to-macro approach to the process of economic development. Saviotti and Pyka (2004a, 2004b) presented a model in which changes in the composition of the economic system accompanying the emergence of pervasive innovations are seen in connection with changes in the demand side of the economy. Montobbio (2002) also took

into account the role of demand in his evolutionary model of structural change. At the same time, the role of technology as a source of productivity growth and structural transformation was examined in a vast number of studies using input–output analysis (Peneder et al. 2003; Franke and Kalmbach 2005; Sánchez Chóliz and Duarte 2006). The empirical literature on the role of technologically leading industries on economic growth has led furthermore to a changing image of the services sector, with several studies pointing out the impact of the new technological paradigm on the creation of new and improved services (Petit and Soete 2001; Petit 2002; Peneder et al. 2003). The high productivity growth rates found in these sectors, together with evidence showing the declining role of manufacturing in economic growth in the more recent period (Fagerberg and Verspagen 1999, 2002) has led to the abandonment of the traditional view regarding manufacturing as the major producer and user of technology, and as the sector providing the major stimulus for growth (Kaldor 1966, 1970; Cornwall 1976, 1977). The new evidence on the service sectors has inclusively led to a change of focus in the services literature, as the debate on the consequences of de-industrialization and on the impact of rising services in productivity slowdown is to some extent replaced by a far more optimistic view, which emphasizes the role of technological factors in the tertiarization process (Andersen et al. 2000; Miles and Tomlinson 2000; Peneder et al. 2003). Dopfer, Foster and Potts (2004) and Dopfer and Potts (2008) theoretically address the issue of structural change and economic dynamics in the micro-meso-macro framework, especially highlighting the transformations at the 'meso' level. However, much of the empirical literature have failed to address the fundamental issues of the change in patterns of demand associated with the spread of new technologies that is suffering to some extent from 'technological determinism'.

II. Empirical Issues of Structural Change in Meghalaya

Before we discuss on the issues of structural change in the context of Meghalaya let us first introduce the Meghalaya state. It is one of the eight states in North East India and is one of the smallest states of the country. The state attained her full statehood on 21st January 1972 after having been carved out from Assam. It has an area of 22,429 sq. kms which is about 0.7 per cent of the total area of the country. The state is surrounded in the West and South by Bangladesh and in the East and North by the state of Assam. It lies between 85°49' and 92°53' East Longitude and between 20°1' and 20°5' North Latitude. The state has an undulating topography. Most of

the area of the state is hilly plateau with deep gorges and valleys. The southern fringes are steep and abrupt whereas the northern and western edges have gentler slopes. It is predominantly a tribal state and majority of her population reside in rural areas.

Since the present study is severely constrained by availability of relevant data for analysis we decided to choose those few demographic and socioeconomic indicators for which data are available. The indicator variables that are analyzed in the following paragraphs are sex ratio, natural growth rate of population, literacy, work force participation, infrastructure and finally output/income and its sectoral composition.

Change in Sex Ratio

As per 2001 Census, the state had a population of 2.31 million, which was about 0.2 per cent of the total population of the country (Table 1). Though populations of both the sexes are increasing over time, the rates of increase are observed to be different in Meghalaya at different point of time whereas the same is not true in case of India. In 1901 for every 1000 males there were 1036 females. This was reduced to 1013 in 1911 and this tendency continued till 1971 after which the trend has been reversed. Thus we find that from 1901 to 1911, the sex ratio was favorable to females in the state but became unfavorable from 1921 onwards. However, from 1991 onwards the rate of increase of females again has started picking up. It is likely that in the process of attaining the statehood of Meghalaya in 1972, the male immigrant population in Meghalaya reverted back to its source regions and since then the amelioration of imbalance in the sex ratio began showing up. It is also likely that since 1980's out-migration of male population from Meghalaya to the other parts of the country increased.

Changes in Birth, Death and Natural Growth Rates of Population

Data on the birth, death and natural growth rate of population reveal a significant structural change in the demography of Meghalaya (Table 2). Until 1995, the natural growth rate of population, measured as the difference in the birth and death rates, has an increasing trend (Figures 1 to 3). The trend was reversed since 1985 and the natural growth rate began declining. When looked in the background of an increasing trend in the sex ratio in favour of the female population, declining birth rates after the mid 1980's indicate several changes that might have occurred in the socio-economic sphere. There are no statistics to support our conjecture, but it is likely that the age of marriage, especially of the women might have increased. It is indirectly

indicated by the appearance of matrimonial advertisements earlier unheard of in the Meghalaya society. It is also likely that economic participation of women in the non-traditional economic activities might have increased that demand more time from them leaving less time available for child bearing and rearing.

Changes in Economic Participation

Changes in the demographic features indicated above are partially explained by the proportion of total workers in the population (Table 3). In 1991, 42.38 per cent of the total workers in the rural areas were female which increased to 43.04 per cent in 2001. For the urban areas, these figures were 25.41 and 33.05. These changes are more consistent for the urban areas. Among the main workers in the urban areas in 1991, about 24.24 per cent were female which increased to 30.03 in 2001. Thus the proportion of main female workers increased substantially. In the rural areas, however, these figures were 39.38 for 1991 and 37.64 for 2001. Thus the participation of the womenfolk as the main workers in rural areas showed a decline in the period 1991-2001, while it increased in the urban areas. It is reflected in the relatively sharper rate of decline in natural growth rate of population in the urban areas vis-à-vis the rural areas. In comparison to 1991, dependency ratio of population on the female workers, especially in the urban areas, increased substantially as depicted in Figure 4. The overall economic participation rate of women is increasing; but the increase is more pronounced in the urban areas (Figure 5).

The occupational structure of a state also indicates the degree of structural change in an economy. Table 4 provides an in depth view of the occupational pattern of the state of Meghalaya. Despite the changes in the definition of workers in various Censuses, some broad inferences on the trend of occupational distribution may be inferred. During 1971-91 the proportion of main workers engaged in the primary sector decreased from 82 per cent to 63 per cent. The 2001 figures stated in Primary Census Abstract (PCA) for the state provide workforce data only under four categories namely cultivators, agricultural labourers, household industry and other services. Thus comparison between the shares of main workers in primary sectors in previous years with 2001 is not possible. The share of cultivators and agricultural labourers taken together, there has been decline in share from about 79 per cent in 1971 to about 63 per cent in 2001. However the share of agricultural labourers increased from 9.88 per cent to 12.54 per cent during same period. Although statistical information is lacking, but clearly observed changes in the structure of land ownership – from the communal to the private – are perceptible and these

changes could have affected the occupational structure, albeit the incomplete census data does not help in comparing the sectoral change in the occupational pattern. However, it can be concluded that there was no perceptible change in the employment in secondary sector and the decrease in the employment in agricultural sector has been neutralized mainly by the corresponding increase in tertiary sector. This type of sectoral shift actually indicates a growth of informal sector particularly in the urban fringe.

Changes in Literacy Rate and in Favor of Women

Increased economic participation rate of women in the decade 1991-2001 is partly explicable by spread of literacy among the womenfolk. Table 5 and the associated Figure 6 present these changes. There has been impressive change in the literacy rate of women in the rural areas enhancing their human development status.

Changes in Per Capita Net State Domestic Product

Since the financial year ending March 31, the per capita net state domestic product (Rs. per year at constant prices 1993-94) has been growing consistently, as presented in Table 6, Table 7 (a, b and c) and Figure 7. As presented in Table 8, the share of agriculture and forestry in the NSDP is on a decline while the share of mining and quarrying is constantly increasing. The share of unregistered or informal manufacturing sector is on a decline and the share of the registered manufacturing sector is increasing. Decline in the role of unregistered or informal manufacturing sector has serious implications with regard to employment, income distribution, rural development, gender-based inequality and self-dependence. Fast increasing share of mining has considerable implications with regard to income inequality, environmental hazards, fragility of the economy subsequent to resource depletion and changes in the demographic composition.

Infrastructural Changes

Along with changes in the structure of the economy leaning towards mining and manufacturing, the number vehicles on the roads is increasing very fast (Table 9). Road length is increasing over the years, but the traffic and the vehicles on the roads are increasing much faster. During 1979-1998, the surfaced road length increased a little over 2.5 times but heavy vehicles (trucks and buses) on the road increased about 9 times. Light vehicle increased over 5 times. As

reported in Table-9, the per capita power consumption in the state increased six-fold during 1978-1999.

Concluding Remarks

Some aspects of structural changes in Meghalaya are worth noting. First, the sex ratio is gradually going in favor of the women. The female participation in the economy is increasing and the dependency ratio on the women is on an increase. There has been a decrease in the employment in agricultural sector which has been neutralized mainly by the corresponding increase in tertiary sector particularly in the urban fringe. Manufacturing and mining sectors are gradually becoming more prominent. Per capita income is rising. Infrastructure is improving, but the vehicles on the roads are increasing faster. Per capita power consumption is increasing. At the meso-level, several shifts are perceptible – the changes in the ownership of land drifting from the communal control to the private domain being very prominent. These changes clearly indicate that Meghalaya is undergoing a change; it is gradually moving from the traditional economy to the industrial economy. These changes have their own social implications. The traditional society of Meghalaya has responded to these changes.

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Table-1
Population and Sex Ratio in Meghalaya

Census Year	Population in Meghalaya			Sex Ratio	
	Male	Female	Total	Meghalaya	India
1901	167,256	173,268	340,524	1036.9	972
1911	195,706	198,299	394,005	1013.3	964
1921	211,216	211,187	422,403	999.9	955
1931	243,993	236,844	480,837	970.7	950
1941	282,666	273,154	555,820	966.3	945
1951	310,706	294,968	605,674	949.4	946
1961	397,288	372,092	769,380	936.6	941
1971	520,967	490,732	1,011,699	941.9	930
1981	683,710	652,109	1,335,819	953.8	934
1991	907,687	867,091	1,774,778	955.3	927
2001	1,176,087	1,142,735	2,306,069	971.6	932.9

Source: Census Reports, Govt. of India

Table-2
Birth, Death and Natural Growth Rate of Population (per 1000 persons) in Meghalaya

Year	Birth Rate			Death Rate			Natural Growth Rate		
	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban
1976	33.5	36.1	20.6	15.5	17.6	5.1	18.0	18.5	15.5
1977	32.5	35.8	15.9	14.1	16.0	4.6	18.4	19.8	11.3
1978	32.0	34.7	17.8	10.2	11.3	5.0	21.8	23.4	12.8
1979	33.2	36.7	15.3	12.1	13.2	6.4	21.1	23.5	8.9
1980	31.2	33.6	18.8	11.1	12.3	4.7	20.1	21.3	14.1
1981	32.6	35.0	18.5	8.2	8.9	4.3	24.4	26.1	14.2
1982	31.1	32.9	23.1	8.9	9.9	4.4	22.2	23.0	18.7
1983	30.0	32.8	17.2	8.3	9.2	4.4	21.7	23.6	12.8
1984	38.3	41.9	20.9	11.8	13.2	5.5	26.5	28.7	15.4
1985	39.1	42.4	24.1	12.7	14.3	5.6	26.4	28.1	18.5
1986	35.4	38.3	21.7	10.1	11.2	5.3	25.3	27.1	16.4
1987	34.9	38.6	17.6	9.1	10.2	3.6	25.8	28.4	14.0
1988	36.4	40.5	17.7	9.1	10.6	2.7	27.3	29.9	15.0
1989	31.9	37.3	19.0	11.9	12.6	4.7	20.0	24.7	14.3
1990	31.8	35.4	15.5	7.8	8.7	3.4	24.0	26.7	12.1
1991	32.4	35.4	18.7	8.8	9.9	4.0	23.6	25.5	14.7
1992	29.8	33.1	15.0	8.5	9.7	2.7	21.3	23.4	12.3
1993	28.5	30.7	17.6	6.8	7.7	2.7	21.7	23.0	14.9
1994	29.5	32.1	16.7	7.1	7.6	4.3	22.4	24.5	12.4
1995	29.0	31.8	14.8	8.9	9.7	5.1	20.1	22.1	9.7
1996	30.4	33.2	16.3	8.9	9.9	4.1	21.5	23.3	12.2
1997	30.2	32.9	16.6	8.8	9.7	4.4	21.4	23.2	12.2
1998	29.2			9.0			20.2		
1999	28.7			9.1			19.6		
2000	28.5	31.0	15.3	9.2	10.1	4.6	19.3	20.9	10.7

Table-3
Changes in the Rate of Economic Participation of Work Force in Meghalaya

Area	Sex	2001					1991				
		Total Popn.	Total Workers	Main Workers	Marginal Workers	Non Workers	Total Popn.	Total Workers	Main Workers	Marginal Workers	Non Workers
Total	P	2306069	956425	742762	213663	1349644	1774778	757322	715587	41735	1017456
	M	1167840	557807	471830	85977	610033	907687	454469	449625	4844	453218
	F	1138229	398618	270932	127686	739611	867091	302853	265962	36891	564238
Rural	P	1853457	826334	629401	196933	1027123	1444731	650731	611164	39567	794000
	M	939803	470712	392511	78201	469091	734865	374958	370511	4447	359907
	F	913654	355622	236890	118732	558032	709866	275773	240653	35120	434093
Urban	P	452612	130091	113361	16730	322521	330047	106591	104423	2168	223456
	M	228037	87095	79319	7776	140942	172822	79511	79114	397	93311
	F	224575	42996	34042	8954	181579	157225	27080	25309	1771	130145

Note: P – Person, M – Male, F - Female

Table-4
Sectoral Distribution of Main Workers (%)

Sector	**Category**	**Census Year**			
		1971	**1981**	**1991**	**2001**
Primary Sector	i. Cultivators	69.15	62.56	55.31	50.23
	ii. Agricultural labourers	9.88	9.98	12.51	12.54
	iii. Livestock, fishing etc	2.66	6.53	6.39	-
	iv. Mining and quarrying	0.15	0.69	0.60	-
	***Total* (i to iv)**	***81.84***	***79.76***	***74.81***	***62.77***
Secondary Sector	v. Household industry	1.09	0.84	0.40	1.75
	vi. Other than HH industry	1.26	1.64	1.75	-
	vii. Construction	0.95	1.75	1.59	-
	***Total* (v to vii)**	***3.30***	***4.23***	***3.74***	***1.75***
Tertiary Sector	viii. Trade and commerce	2.98	3.52	5.26	-
	ix. Transport, storage etc	1.25	1.23	1.45	-
	x. Other services	10.63	11.27	14.75	35.38
	***Total* (viii to x)**	***14.86***	***16.02***	***21.46***	***35.38***
Total Main Workers (i to x)		**100.00**	**100.00**	**100.00**	**100.00**

Source: Compiled from Primary Census Abstracts of different years

Table-5
Literacy Rate in Meghalaya

Category	1991	2001
Total Population	49.10	63.31
Total Male	53.12	66.14
Total Female	44.85	60.41
Rural Population	41.05	57.00
Rural Male	44.83	59.90
Rural Female	37.12	54.02
Urban Population	81.74	87.12
Urban Male	85.72	89.90
Urban Female	77.32	84.30

Table-6
Growth of NSDP in Meghalaya

Year	NSDP	Year	NSDP
1981	5441	1992	7052
1982	5513	1993	6464
1983	5441	1994	6720
1984	5413	1995	6705
1985	5537	1996	7221
1986	5645	1997	7225
1987	5585	1998	7413
1988	5936	1999	7935
1989	6052	2000	8333
1990	6056	2001	8460
1991	6928	2002	8827

Table-7(a)
Net State Domestic Product at Factor Cost by Industry of Origin, Meghalaya
[At 1980-81 Constant Prices]

Sl.No.	Industry	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
1.	Agriculture	6781	6758	7054	6988	7326	7603	7115	7613	6227	7641	8178	8244	6514
2.	Forestry & Logging	380	530	217	177	147	114	98	279	312	311	339	259	193
3.	Fishing	63	64	62	57	44	47	42	51	28	52	78	183	216
4.	Mining & Quarrying	299	432	438	541	688	641	747	692	858	1290	2088	1910	1552
5.	Manufacturing	579	759	613	547	574	709	749	878	799	1037	1262	1418	1506
5.1	Registered	158	209	219	152	157	229	270	321	291	413	471	490	622
5.2	Unregistered	421	550	394	395	417	480	479	557	508	624	791	928	884
6.	Construction	2096	1899	2009	2120	2061	2046	2127	2172	2245	2198	2572	2795	2924
7.	Ele., Gas & Water Supply	-61	-90	-94	-153	-250	-198	-383	-275	-353	-519	-569	-618	-697
8.	Trans. Stor.& Comm.	419	574	632	867	948	845	1008	992	1385	1436	1627	2080	2241
8.1	Railways	0	0	0	0	0	0	0	0	0	0	0	0	0
8.2	Tran. by other Means & Storage	308	454	513	732	796	694	857	813	1223	1269	1452	1617	1730
8.3	Communication	111	120	119	135	152	151	151	179	162	167	175	463	511
9.	Trade, Hotels & Restaurants	1922	1960	1974	1906	2082	2163	2107	2336	2552	2844	3770	4243	3542
10.	Banking & Insurance	310	359	360	392	548	605	834	964	1080	1210	1101	1158	1183
11.	Real Estate, Own. of Dwels. & Bus. Se	1524	1574	1624	1681	1734	1796	1858	1992	2061	2133	2208	2286	2370
12.	Public Administration	2147	2242	2415	2481	2757	3190	3452	3848	4391	4608	4488	4515	5183
13.	Other Services	1503	1667	1710	1853	1800	1871	2013	2183	2371	3214	3286	3332	3191
14.	Net State Domestic Product	17962	18728	19014	19457	20459	21432	21767	23725	23956	27455	30428	31805	29918
15	Population ('000)	1320	1358	1397	1437	1477	1518	1558	1598	1646	1720	1754	1808	1856
16	Per Capita Income (Rs.)	1361	1379	1361	1354	1385	1412	1397	1485	1455	1596	1735	1759	1612

Source: National Account Statistics, Government of India, New Delhi.

Table-7(b)
NSDP at Factor Cost by Industry of Origin, Meghalaya [At 1999-2000 Constant Prices]

Sl. No.	Industry	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008 (Adv)
1	Agriculture	70738	74217	76857	81545	83238	87997	92809	97290	101987
2	Forestry	4180	4432	4974	5119	5750	6188	5840	6079	6328
3	Fishing	2010	2684	2109	2599	2112	2572	2467	2566	2668
4	Manufacturing	5022	5214	5123	8348	9387	10752	10659	11921	13156
4.1	Registered	2077	2130	2241	5386	6362	7964	7926	8846	9874
4.2	Un-Registered	2945	3084	2882	2962	3025	2788	2733	3075	3282
5	Mining	23706	27109	35516	26991	33034	Not available			

Source: NEDFI, Guwahati

Table-7(c)
Net State Domestic Product of Meghalaya At Current Prices (in Rs. Lakh)

Sl. No.	Industry	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008 (Adv)
1	Agriculture	70738	78367	87397	92660	95538	96233	104044	108679	113521
2	Forestry & Logging	4180	4711	5453	5874	7053	7404	7278	7823	8408
3	Fishing	2010	2794	2426	2872	2795	3252	3112	3312	3525
4	Manufacturing	5022	5234	5281	8764	10556	14108	14770	16264	17502
4.1	Registered	2077	2239	2479	5902	7463	11233	11901	12609	13359
4.2	Un-Registered	2945	2995	2802	2862	3093	2875	2869	3655	4143
5	Mining & Quarrying	23706	29191	40927	33704	44550	49199	50793	53611	56585
6	Construction	32376	40181	41720	44905	49546	57026	70188	81921	87628
7	Electricity, Gas & Water Supply	6628	6725	6708	7832	7893	9228	8273	8645	9034
8	Transport, Storage & Communication	20259	21644	23914	26165	28336	31957	35139	41797	48409
8.1	Transport by other means	17163	18610	20542	21992	24394	27404	29509	35599	41011
8.2	Storage	70	82	92	98	112	128	134	144	158
8.3	Communication	3026	2952	3280	4075	3830	4425	5496	6054	7240
9	Trade, Hotel & Restaurant	33645	36843	43878	48406	57874	61420	66639	72698	81570
10	Banking and Insurance	9565	11345	12528	15016	17071	17407	19614	21940	24542
11	Real Estate, Ownership of dwelling and Business Services	35276	40019	46051	50614	54434	56754	60896	64844	71210
12	Public Administration	44300	47886	50035	53967	59156	68074	73319	78823	85300
13	Other Services	33503	34770	38782	38977	40531	43233	47521	53494	57197
14	NET STATE DOMESTIC PRODUCT	321208	359710	405100	429783	475333	515295	561586	613851	664431
15	Population (000)	2237	2295	2353	2367	2397	2427	2458	2488	2518
16	Per Capita Income (in Rs.)	14359	15674	17216	18157	19830	21232	22847	24672	26387

Source: Central Statistical Organization (CSO)

Table-8
Sectoral Composition of NSDP in Meghalaya

Sector	1981	1991	2002	2008
Agriculture	78.74	68.62	61.69	54.50
Forestry	6.17	2.16	3.99	3.38
Fishing	0.75	1.52	1.69	1.43
Manufacturing	8.86	11.80	4.11	7.03
(a) Registered	2.44	4.08	1.80	5.28
(b) Unregistered	6.41	7.72	2.31	1.75
Mining & Quarrying	5.03	15.90	28.51	33.66

Table-9
Growth of Infrastructures in Meghalaya

Number of Vehicles

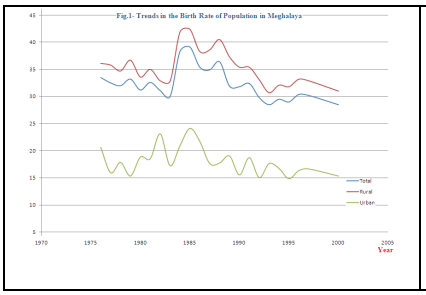
Year	Trucks	Buses	Small 4-Wheelers	3-Wheelers	2-Wheelers	Others
1980	1100	215	3131	-	1450	266
1991	7183	1502	13065	21	7404	3114
1998	10997	2012	19350	637	14734	2902

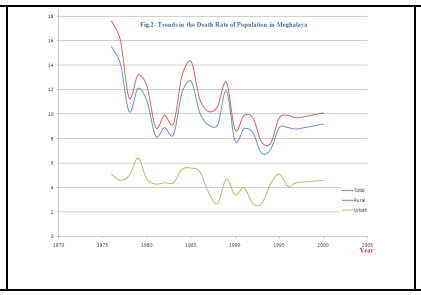
Road Length (Kms.)

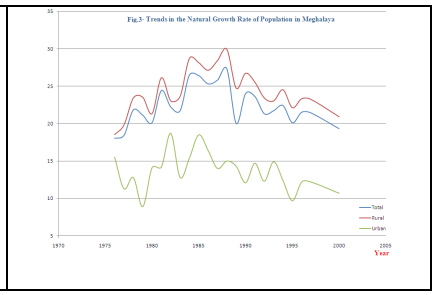
Total Road Length				Surfaced Road Length				Road per 100 sq. km.				Road per 1000 Population			
1979	1989	1992	1997	1979	1989	1992	1997	1979	1989	1992	1997	1979	1989	1992	1997
3690	5624	7832	8480	1475	3110	2931	3923	16.40	25.07	34.90	37.8	3.17	4.21	4.45	3.86

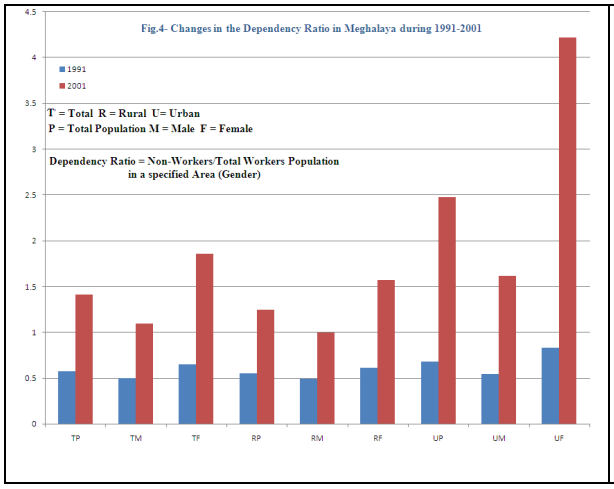
Per Capita Power Consumption (KWH)

1978	1979	1981	1985	1986	1987	1988	1989	1990	1992	1994	1995	1996	1999
25	35	31	61	76	83	84	98	108	129	110	140	143	150









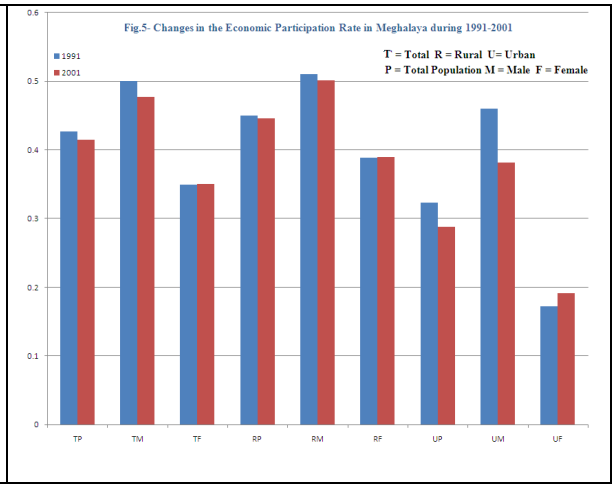



Fig.6- Changes in the Literacy Rate in Meghalaya during 1991-2001
T = Total R = Rural U= Urban
P = Total Population M = Male F = Female
1991
2001
100
90
80
70
60
50
40
30
20
10
0
TP
TM
TF
RP
RM
RF
UP
UM
UF

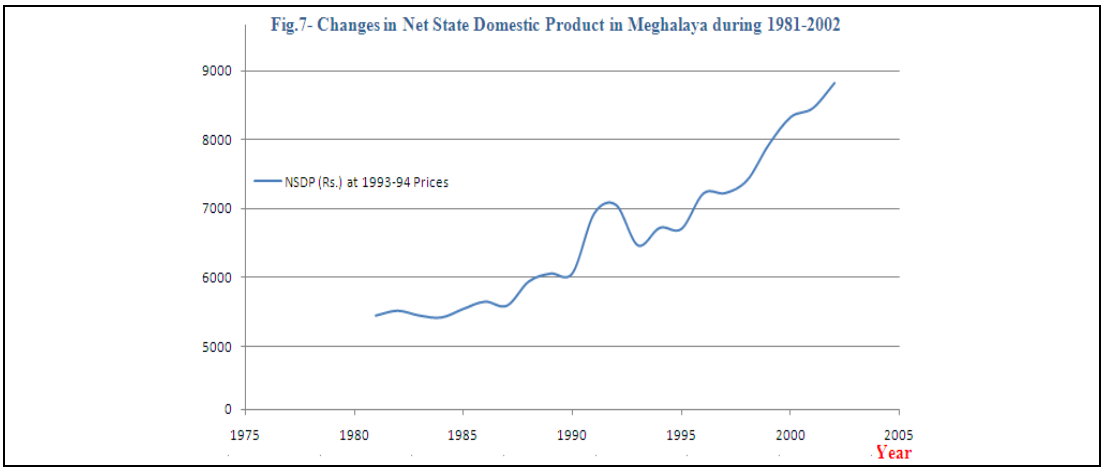


Fig.7- Changes in Net State Domestic Product in Meghalaya during 1981-2002
NSDP (Rs.) at 1993-94 Prices
9000
8000
7000
6000
5000
0
1975
1980
1985
1990
1995
2000
2005
Year

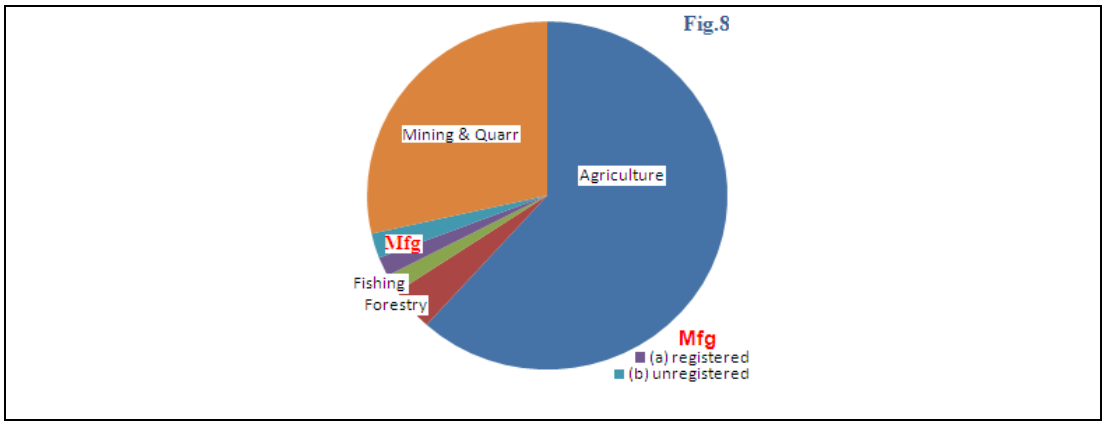


Fig.8
Mining & Quarr
Agriculture
Mfg
Fishing
Forestry
Mfg
(a) registered
(b) unregistered