INTRODUCTION

Economic development has been and is a major goal of poor and rich countries alike. The phenomenon that one prefers to denote as “economic development” is very much a matter of what one values as policy goals (Todaro, 1977). ‘Development pattern’ may be explained as “a systematic variation in any significant aspect of the economic or social structure associated with a rising level of income or other index of development” (Chenery and Syrquin, 1975). Meier (1973) was of the opinion that economic development is “a process whereby the real per capita income of a country increases over a long period of time”. Development is not only related to income, despite the fact that “income has a great deal to do with it”. In particular, “development is also the eradication of poverty, elimination of unemployment, disease and malnutrition; it is an increase in life expectancy; it is an access to safe drinking water, sanitation, and health services; it is the reduction of infant mortality; it is an increased access to knowledge and schooling, and literacy in particular and elimination of inequalities” (Ray, 2001).

The term development also implies change, as it is associated with social and economic transformation within countries or regions. According to Goulet (1971), the three basic components or core values of development are life-sustenance, self-esteem and freedom. “Life sustenance is concerned with the provision of basic needs. No country may be regarded as fully developed if it cannot provide all its people with such basic needs as housing, clothing, food and minimal education. Self-esteem is concerned with the feeling of self-respect and independence. No country can be regarded as fully developed if it is exploited by others and does not have the power and influence to conduct relations on equal terms. Freedom refers to freedom from the three evils of ‘want, ignorance and squalor’ so that people are more able to determine their own destiny. No person is free if they cannot choose; if they are imprisoned by living on the margin of subsistence with no education and no skills” (Thirlwall, 2006).

According to Todaro and Smith (2007), “Development must therefore be conceived of as a multi-dimensional process involving major changes in social structures, popular attitudes, and national institutions, as well as the acceleration of
economic growth, the reduction of inequality, and the eradication of poverty”. Development should have the following three objectives:

1. “To increase the availability and widen the distribution of basic life-sustaining goods such as food, shelter, health and protection.
2. To raise levels of living, including, in addition to higher incomes, the provision of more jobs, better education, and greater attention to cultural and human values, all of which will serve not only to enhance material well-being but also generate greater individual and national self-esteem.
3. To expand the range of economic and social choices available to individuals and nations by freeing them from servitude and dependence not only in relation to other people and nation-states but also to the forces of ignorance and human misery”.

It is relatively common to distinguish the term ‘economic development’ from ‘economic growth’. Development is no longer considered identical with growth though they are used interchangeably in some cases. ‘Economic Growth’ is defined as “the steady process by which the productive capacity of the economy is increased over time to bring about rising levels of national output and income” (Todaro & Smith, 2007). ‘Economic growth’ is concerned basically with “measuring growth in economic variables and identifying their interrelationships such as between the national income growth rate and the speed of capital formation”. On the other hand ‘Economic development’ is “a process involving not only quantitative expansions but also changes in non-quantitative factors such as institutions, organizations, and culture under which economies operate”. If we follow this usage, “economic growth is considered a quantitative aspect of economic development”. If so, in addition to the analysis of economic growth, the study of economic development must examine the effect of cultural and institutional factors on ‘economic growth’ as well as the influences of economic growth on those factors (Hayami and Godo, 2005). Thus economic development is a broader aspect which comprises of other changes in the economy along with growth.

Since independence in 1947, Indian economy experienced a “low rate of growth”, inspite of favourable preconditions in the late 1940s of a well-diversified
resource base—both physical and human—and a relatively stable political system (Cashin & Sahay, 1996).

Per capita gross domestic product (PCGDP) is an “indicator of the average standard of living of individual members of the population”. An increase in PCGDP indicates economic growth. Before 1990, PCGDP and GDP were used to evaluate the human development or country development and for making comparison among countries or regions. Despite its importance, economic theorist finds flaws and problem with PCGDP since this indicator covers only the financial side of human development. The concept of human development index occupies great importance because it covers both social and economic factors of human development. The HDI is now mostly used to evaluate human development in a country or state and for making comparison between countries or states (Shah & Gosavi, 2010).

Since the early-1990s, there has been a remarkable shift in the “focus of development planning” from mere economic growth to an improvement in human well-being. Sen (1985, 1987), Dasgupta (1993) and ‘United Nations Development Programme’ (UNDP 1990), view development as “a process of enhancing people’s capabilities for improving quality of life. Mere economic growth in production of goods and services and the consequent growth in per capita income may not necessarily lead to an improvement in human well-being, which is broadly conceived to include not only consumption of goods and services, but also the accessibility of people to the basic necessities required for leading a productive and socially meaningful life” (Ghosh, 2006).

The term human development seems to be very simple but has a complicated inferred meaning. Human development may mean differently for different people in different contexts. For a poor person, “development may mean his increased earnings for buying better food, clothing and housing, and for a rich person it could abstract into satisfaction in life” (Indrayan et al., 1999). It is the expansion’s of people’s freedoms to live long and healthy life. The phenomenon of human development is “a people-centred approach to development where the primary concern is enhancement of human well-being” (Meghalaya HDR, 2008). Human development (HD) results are “a function of economic growth, social policy, and
poverty reduction measures at the macro-level. These, in turn, are the result of various synergies in the form of feedback loops, operating in terms of both inputs and outputs in the development process” (IHDR, 2011).

“The human development index measures the average achievements in a country in three basic dimensions of human development—longevity, knowledge and a decent standard of living. The human poverty index measures deprivation in basic human development in the same dimensions as the human development index. The variables used are the percentage of people expected to die before age 40, percentage of adults who are illiterate and overall economic provisioning in terms of the percentage of people without access to health services and safe drinking water and the percentage of under-weight children under five. If human development is about enlarging choices, poverty means that opportunities and choices most basic to human development are denied to lead a long, healthy, creative life and to enjoy a decent standard of living, freedom, dignity, self respect and the respect of others” (UNDP, 1997).

“Poverty is a multi-dimensional concept and is conventionally defined in terms of income poverty, i.e., number of people below the poverty line. The concept of poverty line in terms of income is interpreted as referring to a very minimum level of calories for the people to live, so that they do not die out of hunger, but not adequate to lead a human life with dignity” (Tilak, 2005).

India is a country with a population over ‘1.21 billion’ and comprising of ‘29 states and 7 Union Territories’. “Balanced regional growth” is one of the major objectives of each ‘five year plan’. “Neo-classical economic growth model” suggests that economies would converge in the long run in terms of production or income level. But if we turn our eyes to ‘Indian economy’, we find that the basic assumption of neo-classical growth theory might not necessarily be fulfilled (Gunji and Nikaido, 2004). The World Bank (2006, cited in Gaur, 2010) in its report entitled, “India-Inclusive Growth and Service Delivery: Building of India’s Success” has notified huge disparities across states, there are significant differences in the levels of economic development across Indian states. All states have not grown at same rate as some states like ‘Kerala, Maharashtra, Karnataka and Gujarat’ etc. are
growing rapidly than others like ‘Bihar, Uttar Pradesh, Assam, Madhya Pradesh and Orissa’. The report further adds that the gap between India’s rich and poor states has widened further during the 1990’s. There are also differences in the ‘levels of education, literacy, per capita incomes and health standards’, which causes disparities in the standard of living and regional inequalities are still persisting across states. The World Bank (2008) in its another report has highlighted the rising income disparities in India during 1993-2005, when the Gini Coefficient rose from 0.3152 in 1993-94 to 0.3676 in 2004-05.

India is a country of extraordinary diversity. Nowadays, regional disparity in India is a critical issue. Regions differ enormously in terms of demography, geography, language, social norms as well as in natural resources resulting into significant differences in levels of economic development across Indian states (Nayyar, 2008). In spite of continuous efforts of policy makers and planners, regional disparity remained a serious issue (Bhattacharya & Sakthivel, 2004). Since independence, the issue of ‘regional economic growth’ and persisting disparities has attracted considerable attention among planners, policymakers and researchers. The Indian government has been concerned with the issue of how to promote economic growth to attain balanced regional development in the country. ‘Balanced growth’ of all the regions of the country has been regarded important for political stability, national integration and economic viability. Redressing regional imbalances has been one of the primary objectives of each ‘five year plan’. “The Eleventh Five-Year Plan (2007-2012)” with ‘faster and more inclusive growth’ as its major objective noticed that disparities among regions have increased steadily and the growth failed to pick up in poor states such as Orissa, Bihar, Madhya Pradesh and Uttar Pradesh (Ghosh, 2012).

From a dismal growth rate of 3.5 per cent in 1960’s and 1970’s (the so-called Hindu growth rate), the Indian economy broke the barriers and achieved GDP growth rate of 5.82 per cent during 1980/1981-1990/1991 and accomplished an impressive growth rate of about 7.5 per cent in the post 2000 period. Thus, after crossing the Hindu rate of growth in 1990’s, India has made a noteworthy progress due to the continuous efforts made by the Indian government. But the benefits of growth have not trickle down and regional inequalities are still persisting across
states. All states have not grown at the same pace with the states like ‘Maharashtra, Kerala, Karnataka, Gujarat, Tamil Nadu’ etc. growing rapidly whereas the states like ‘Orissa, Uttar Pradesh, Bihar, Assam and Madhya Pradesh’ have lagged behind. There are huge differences in levels of education, health, literacy, infrastructure, investment expenditure, population growth, and the structure of regions which causes disparities in per capita income and regional inequalities are still persisting across states (Cherodian & Thirlwall, 2013). This may cause widening of the standard of living across the states of India. Therefore, it is important to know whether the initial poorer states are catching up of with the richer ones or not. This catching up, in the domain of development economics is known as the theorem of convergence. ‘The convergence theorem (Barro, 1991)’ presumes that “when the growth rate of an economy accelerates, initially some regions with better resources would grow faster than others. But after sometime, when the law of diminishing marginal returns set in, first growth rates would converge, due to differential marginal productivity of capital (higher in poorer regions and lower in richer regions), and this in turn would bridge the gaps in the levels of income across regions” (Bhattacharya & Sakthivel, 2004).

Economic convergence may be divided into two categories: micro convergence and macro convergence. “Micro convergence refers to a tendency towards the equalization of income of identical factors across economies. Macro convergence focuses on aggregate variables such as per capita income or output per worker”. The theory describes how per capita incomes across countries or regions may converge or diverge over the period of time. The notions of micro and macro convergence are related because per capita income is a weighted average of factor prices (Rassekh, 1998).

According to Baumol (1986), the concept of convergence implies “forces accelerating the growth of nations who were latecomers to industrialization and economic development give rise to a tendency towards convergence of levels of per capita product or, alternatively of per worker product”. According to Barro (1991), the convergence hypothesis postulates that “poor countries, those with relatively low initial per capita income, grow faster than rich ones so that over time income levels converge across countries”. As stated in Barro and Sala-i-Martin (1992, 1995) and
Mankiw et al. (1992,) and many others (cited in Erdal et al., 2006), “several economic forces including diminishing returns to capital, spatial labour mobility, spatial capital mobility and diffusion of technologies and innovations across regions give rise to convergence”. There are three possible and related form of convergence. They are called ‘unconditional β-convergence, σ-convergence and conditional β-convergence’.

“Unconditional β-convergence states that poor countries will tend to grow faster than the rich countries due to the diminishing marginal returns to capital in the rich countries, as the level of capital per labour is high in these countries. Moreover, the further down a country is below its balanced growth path and the higher lags in access to new technology, the higher would be the expected growth when the country gains access to such technology” (Romer, 1986). In the empirical literature, the testing of convergence is done by “running a cross-section regression of the time-averaged per capita income growth rate on the initial level of per capita income. A negative sign for the respective coefficient reflects the existence of convergence” (Noorbakhsh, 2006).
The illustration of the unconditional convergence can be given with the help of diagram (Fig. 1). The line AB plots the time path of (log) per capita income at the steady state. The path CD represents a country that starts below the steady state level per efficiency unit. According to Solow model, this country will initially display a rate of growth that exceeds the steady-state level and its time path of (log) per capita income will move asymptotically toward the AB line. Overtime, its growth rate will decelerate to the steady state level. Likewise, a country that starts off above the steady state, say at E, will experience a lower rate of growth, because its time path EF of (log) income flattens out to converge to the line AB from above.

The second concept relates to cross-sectional dispersion. Sala-i-Martin (1996, cited in Jones, 2002) labels this concept of convergence as \( \sigma \)-convergence. “The concept of \( \sigma \)-convergence deals with how the distribution of income or product across economies evolve over time, that is if \( \sigma_{t+T} < \sigma_t \), where \( \sigma_t \) is the standard deviation of log \( Y_{i,t} \) across economies at time \( t \)”. Friedman (1992, cited in Jones, 2002) suggested that “\( \sigma \)-convergence can be more appropriately measured by simply tracking the inter-temporal change in the coefficient of variation of the given cross-country income distribution, that is, a tendency for the inter-country or inter-regional dispersion in per capita income levels to decline over time”.

Quah (1995) and Sala-i-Martin (1996, cited in Jones, 2002) shows that “the existence of \( \beta \)-convergence is a necessary condition for the existence of \( \sigma \)-convergence. For the dispersion of per capita GDP to decline between two countries, the initially poorer countries should grow faster than the initially richer ones, so that the existence of \( \beta \)-convergence generates \( \sigma \)-convergence”. According to Shiller (2009), there are significant differences between \( \beta \)-convergence and \( \sigma \)-convergence. “\( \beta \)-convergence is measured between two time periods, while \( \sigma \)-convergence is measured over time. The \( \beta \)-coefficient is able to predict not only the speed of convergence but also whether the cross-sectional dispersion will fall or rise over time. \( \beta \)-convergence is necessary but not a sufficient condition for \( \sigma \)-convergence. The cross-sectional dispersion can be affected by external shocks, which would cause the \( \sigma \)-coefficient to increase in spite of a positive \( \beta \)-coefficient”.
Figure 2 displays the behaviour of the log of GDP per capita (log GDP) for two economies over time. Suppose we observe the data at two discrete intervals, t and t + T. Economy A is richer than economy B. There is an initial distance or dispersion between the two levels of income. In panel a, the growth rate of an economy A is smaller (actually negative) than the growth rate of an economy B between time t and t + T and, therefore, we say that there is β-convergence. Moreover, because the dispersion of log (GDP) at t + T is smaller than at time t, we also say that there is σ-convergence. It is impossible for the two economies to be closer together at t + T without having the initially poor economy growing faster (in this case economy B). In other words, a necessary condition for the existence of σ-convergence is the existence of β-convergence.

When an initially poor economy grows faster than a rich one, then the levels of GDP per capita of the two economies will become more similar over time. In other words the existence of β-convergence will tend to generate σ-convergence. Panel a in Fig. 2 is an example where β-convergence exists and is associated with σ-convergence. Panel b shows that the lack of β-convergence (the initially rich economy grows faster) is associated with the lack of σ-convergence (the distance
between the two economies increases over time). In panel c, the initially poor economy (B) grows faster than the initially rich economy (A), so there is β-convergence. However, the growth rate of B is so much larger than the growth rate of A at time \( t + T \), B is richer than A. So, at time \( t + T \), the distance between A and B is the same as it was at time t (except that now the rich economy is B). Hence, the dispersion between these two economies has not fallen, so there is no σ-convergence”. (Sala-i-Martin, 1996).

Economic theory describes why poor countries may “catch-up” with rich ones over the period of time. Romer (1986, cited in Chowdhury, 2004) gave three significant causes for the convergence process. “First, the prediction of the neoclassical growth models that countries will converge to their balanced growth paths, one would expect the poorer countries to catch up with the richer ones. Second, the Solow model implies that the return on capital is lower in richer countries, as the level of capital per labour is high in these countries. Thus capital flow from rich to poor countries will eventually lead to convergence. Lastly, if there are lags in the diffusion of knowledge, income differences can arise since some countries are yet to employ the appropriate technique of production. These differences can disappear once poorer countries gain access to the cutting edge technology”. The central idea regarding the convergence hypothesis is based up on ‘neoclassical growth models’. ‘In neoclassical growth models’, such as ‘Solow (1956), Cass (1965) and Koopmans (1965)’, “a country per capita growth rate tends to be inversely related to its starting level of income per person. In particular, if countries are similar with respect to structural parameters for preferences and technology, then poor countries tend to grow faster than rich countries. Thus, there is a force that promotes convergence in levels of per capita income across countries” (Barro, 1991). The convergence hypothesis in neoclassical growth models is based up on the assumption of “diminishing marginal returns to physical capital”. “Countries with low initial income per capita have low ratios of capital to labour, hence a higher marginal product of capital and thereby tend to grow at high rates. This tendency for low-income countries to grow at high rates is reinforced in extensions of the neoclassical models that allow for international mobility of capital and technology. International capital would flow to areas with relatively high rates of return, which is to areas
where capital is relatively scarce. Therefore capital-labour ratios will move over time to equality and with them factor prices. This is the classical prescription of the neoclassical growth model with decreasing returns. This would imply that capital would flow from rich to poor countries and income in poor countries would grow faster than incomes in rich countries and that the two would eventually converge” (Jones, 2002). Following neoclassical growth framework, a numerous studies have attempted to examine the differences in growth rates and convergence.

According to the ‘neo-classical growth model’, “countries with a low capital-labour ratio are expected to have a high marginal productivity of capital. This will prompt a faster accumulation of capital and a higher rate of economic growth. As an economy moves towards its steady state income, marginal product tends to zero. Hence, the growth rate of an economy is positively related to the distance from its steady state value” (Sala-i-Martin, 1996). “If countries differ only with regard to the initial level of income, and if poorer countries are growing faster than richer ones in the long run, they will all converge to the same steady state income. This is known as absolute beta convergence. But if countries are different with regard to technology, population growth rates and so on, then countries will converge to different steady states” (Dobsan & Ramlogan, 2002). This concept is known as “conditional convergence” because convergence is conditional on the different structural characteristics or “fundamentals” of each economy, such as its rate of ‘population growth, technologies, societal preferences, and government policy’. “Different structural characteristics imply that different countries will have different steady-state relative per capita incomes”. In order to test for conditional convergence, therefore, it is necessary to hold constant the steady state of each economy by introducing into the basic “growth regression” additional variables that proxy for the steady state. If β is negative after including other explanatory variables, then there will be conditional β-convergence. “The conditional convergence and absolute convergence hypotheses only coincide if all countries have the same steady state income” (Sala-i-Martin, 1996).
Now there is no single line that depicts the steady-state time path of (log) per capita income of all countries. Instead, different countries have their own steady-state paths. The line AB and A'B' represents the steady state paths of two different countries. These lines are parallel to one another on the assumption that same rate of technical progress (and therefore, the same rates of steady-state growth) is maintained across all countries.

Now, imagine that a country with steady state path AB starts at a point C above the steady state path. The Solow model suggests that over time, this country will exhibit a slower rate of growth than the steady-state path, as it is converging with the steady-state path AB. This path is given by the curve CD. Likewise a country that starts at point E, below its steady-state path A'B' will exhibit a higher growth rate than that of the steady state, with the resulting path EF converging upward to its steady-state path.

“The steady states levels of incomes of the economic units are held constant for testing the hypothesis of conditional convergence across different economic units. Different variables were used by the researchers in their studies as determinants of the steady state level of income” (Jan & Chaudhary, 2011). Sala-i-
Martin (1997) preferred the “initial level of income, life expectancy and primary school enrolment rate”; Nayyar (2008) uses the initial income level, loans extended by All-India Financial Institutions (AIFIS) (as a proxy for private investment), government capital expenditure (as a proxy for public investment), literacy rate and the infant mortality rate in a conditional framework; Cherodian & Thirlwall (2013), points out the importance of the share of agriculture in state GDP, population growth, male literacy, credit growth, and state expenditure as share of GDP for testing conditional convergence hypothesis.

Due to the continuous efforts made by the governments through various Five Year Plans, India has achieved success in many areas of social and economic development but still the economy suffers from large scale disparities. Various factors such as per capita income, literacy rate, health standards and different level of infrastructure development contribute to the present inequalities among Indian states. There is a substantial literature covering different time periods which examined the issue of convergence or divergence across states and results are, more or less sensitive to the sample, period and estimation techniques. Inspite of many efforts and much progress made in recent past, there is still a wide scope for testing the convergence hypothesis in respect of economic development by taking into consideration various socio-economic and human development indicators which have non-income components also. This provides a strong motivation for studying the variability of inter-state development and to find out the various reasons responsible for existing variations among Indian states. The overall objective of this study is to examine the convergence hypothesis across Indian states over the period 1981 to 2011. Specifically, the objectives are:

1. To examine the hypothesis of convergence in respect of per capita net state domestic product and net state domestic product originating from agricultural, industrial and services sector of Indian states for the period since 1980’s.

2. To examine the issue of convergence hypothesis in case of Human Development Index as well as in term of its three components and to measure the speed of convergence and the ‘half-life convergence - the time it takes for 50 per cent of the initial gap to be eliminated’.
3. To construct Composite Development Index based on socio-economic and demographic indicators with an objective to examine the convergence hypothesis for it.

4. To examine the deprivations in three basic elements of human life (health, knowledge and a decent living standard) and work out the level of human poverty in the light of the experience of Indian states and to compare the positions of major states of India with respect to human development index, human poverty index and per capita net state domestic product.

5. Identify reasons for the convergence or lack of it among the Indian states.

**Plan of the Study**

To achieve the above objectives, the study has been divided into eight chapters including the present one. The second chapter reviews the literature related to economic development, growth and convergence hypothesis while data base and methodology used in the study have been discussed in chapter third. Convergence hypothesis in respect of per capita NSDP and NSDP originating from agricultural, industrial and services sector has been examined in chapter fourth. The issue of convergence hypothesis in case of Human Development Index as well as in term of its three components has been examined in chapter fifth. Composite Development Index based on socio-economic and demographic indicators has been constructed in chapter sixth with an objective to examine the convergence hypothesis for it. Human Poverty Index calculated to compare the positions of major states of India with respect to human development index, human poverty index and per capita NSDP forms the subject matter of chapter seventh. Chapter eighth contains summary, conclusions along with policy implications derived from the study.