Convergence Divergence Debate within India

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Abstract
  The notion of convergence or catching up by a state/country with lower initial income and capital per capita with a state/country with comparatively higher initial income and capital per capita gained importance with the introduction of neo-classical theory of growth. Many empirical findings confirmed the notion of convergence between rich and poor countries through cross sectional study of data. But any such tendency of convergence has not been visible for Indian states. There has been growing disparities among rich and poor states within India in spite of growing mobility of labor and growing amount of trade of goods and services. Capital has been concentrated in fewer states and has not shown any sign of free mobility even after governmental efforts to further reduce costs in backward states. The absence of social and overhead capital in backward states seems to have nullified or outweighed the effect of reduced marginal returns to capital in richer states.
Keywords— *Convergence, divergence, regional disparities, neo-classical growth theory, steady state situation.*

I. INTRODUCTION

  Regional disparities have always been a problem for the overall development of a nation. In spite of seven decades of planning India has not been able to remove the regional differences between states. There are two India residing one nation, one is a relatively well off part while other larger portion of population can hardly make ends meet. Many studies and empirical evidences have shown that disparities among Indian states showed no tendency of decreasing and, on the contrary, they increased even after extensive planning and dispersal of public expenditure in the favor of poorer states.

  With the advent of neo-classicalgrowth theory, the notion of convergence gained importance. Neo-classical studies tend to underline a general trend towards convergence, whereas endogenous growth models and other approaches emphasize divergence.Convergence means that a state that starts off at low performance levels on an indicator should see faster growth on that outcome over time, improving its performance so that it catches up with states which had better starting points. Thus conversion means reduction in regional/national disparities.India's economic performance has been remarkable in the aggregate but

the growth of a federation is dependent upon the growth of individual states forming the federation. Whereas India as a nation has experienced high level of economic growth, income and consumption patterns within India shows a tendency of divergence among individual states in a striking contrast to China and the world where there is a tendency of convergence.

  This paper tries to look into the current situation of income disparities between states, highlights the absence of convergence between states and makes an attempt at explaining what could possibly be the reason behind this absence of convergence.

II. MEANING OF CONVERGENCE

  Convergence means catching up. One of the important implications of Solow-Swan model is that of convergence, i.e., an economy which is lagging behind will catch up with the economy which is already superior, both the economies will eventually converge. There are two meanings of convergence, unconditional convergence and conditional convergence.

A. Absolute or Unconditional Convergence

  If two countries have same savings rate, same rate of population growth, depreciation rate of capital and same production function, they will have the same equilibrium values of capital per capita and income per capita or in other language same steady state position. All these factors which are assumed to be same for any two countries are parameters which determine the savings function. As per the meaning of unconditional convergence, these two countries having the same value for all the parameters will eventually converge. The country with low levels of initial stock of income and capital per capita will grow faster to catch up with the country which has comparatively higher initial stock of income and capital per capita. The concept of unconditional convergence can be explained through the below diagram where 45° line represents the steady state condition.

Figure I : Diagrammatic Representation of Unconditional Convergence
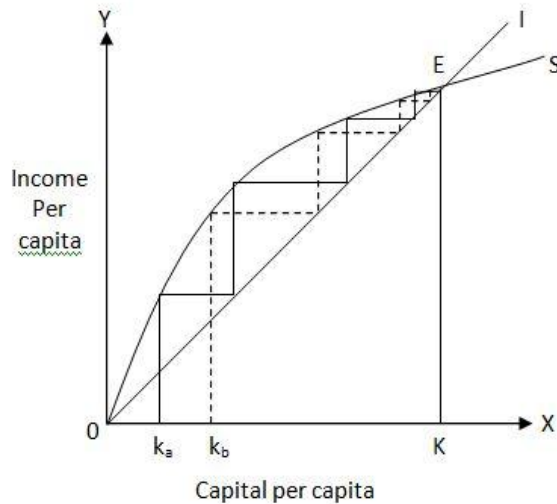
The steady state level 'E' is determined at the intersection of savings curve 'S' and the 45° line 'I' which represents the investment required to maintain the steady state. Suppose there are two countries A and B having the same values of the parameters which determine the savings function. But these countries have different initial stock of capital k_a and k_b, k_b being higher than k_a. The figure above shows that the country with lower stock of capital will grow faster and will catch up with the country having higher stock of capital.

This convergence is called unconditional because it says that growth rate of an economy declines as it approaches its steady state position, thus two economies having same steady state situation will eventually converge no matter what. This is supported by the law of diminishing marginal returns. As a country rich in capital grows returns on the capital employed will diminish with time thus its growth rate will experience a lower side pull.

B. Conditional Convergence-

When countries differ in initial stock of capital and income as well as parameters which define savings function then the steady state situation of these two countries cannot be one and the same. As per the definition of conditional convergence, in such a scenario, over time the growth rates of these two countries will eventually equalize or converge.

This convergence is conditional because the steady state levels of capital per capita and income per capita depends on the saving rate, rate of population growth and the position of production function that differs across countries. Thus countries will converge

on the condition that the characteristics that affect their growth rates are similar. This means that if some additional variables as level of education, political stability etcetera are also included, differences in growth rates among countries can be explained.

Figure I : Diagrammatic Representation of Conditional Convergence
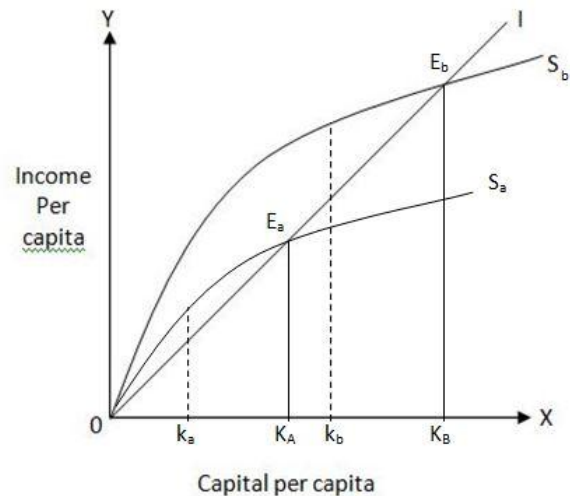
Here, stock of capital in country B is greater than in country A, $k_b > k_a$, and saving rate is also greater in country B than in country A, $S_b > S_a$. The steady state position of country B will be determined by the intersection point of intersection of 45° line and saving function of country B at point E_b and that of country A at E_a. This shows that the gap between a rich and a poor country is not likely to diminish unless the characteristics affecting the growth rate improve in the poor country.

III. EMPIRICAL FINDINGS ABOUT CONVERGENCES IN WORLD

A number of economists have tested the hypothesis of convergence, both absolute and conditional, on the basis of statistical relationship between the growth rate of income per capita and the initial level on income per capita. Neo-classical studies tend to underline a general trend towards convergence, whereas endogenous growth models and other approaches emphasize divergence. Based on the Maddison data for 16 countries from 1870 to 1979, Baumol found that poor countries like Italy and Japan caught up (unconditionally) with the income of rich countries like Canada and the United States during these years. But Abramovitz found that income per capita tended to diverge between 1870 and 1950. DeLong also found that GNP per capita did not

converge over time. Taking the broad sample of countries in the Heston-Summers data for 1960 to 1985, Romer concluded that poor countries in this sample did not grow faster than the rich countries.

Regarding conditional convergence, Barro and Sala-i-Martin in their empirical analysis of cross-section of countries based on different variables like education, population growth, government policies etc. found that growth rates per capita differ enormously across countries over long periods of times. On the basis of data for 122 countries from 1965-1985, they concluded that the dispersion of real GDP per capita across a group of economies tend to fall over time and that the cross-country data support the conditional convergence hypothesis.

The table below shows the growth rates of GDP for selected economies.

Table I : Growth Rates of GDP and Per Capita GDP in Selected Economics

	Country	Initial level of GDP per Capita PPP(1990) (in USD) in increasing order	Average Annual Rates of GDP Growth (%)			Average Annual Growth Rate of GDP per capita (%)		
			1990-2000	2000-2005	2011	1990-1995	2000-2005	2006-2010
1.	China	986.57	10.6	9.6	9.3	10.95	9.06	10.62
2.	India	1,146.03	6	6.9	6.85	3.17	5.41	7.11
3.	Mexico	6,019.26	3.1	1.9	3.91	-0.21	0.58	0.59
4.	Russian Fed	8,012.80	-4.7	6.2	4.33	-8.97	6.6	3.84
5.	Spain	13,626.45	2.6	3.1	0.42	1.23	1.73	-0.3
6.	UK	16,739.15	2.7	2.3	0.76	1.39	2.04	-0.29
7.	France	17,640.66	2	1.5	1.69	0.8	0.87	0.09
8.	Italy	18,546.23	1.6	0.7	0.43	1.23	0.31	-0.97
9.	Japan	19,229.67	1.3	1.3	-0.7	1.1	1.16	0.46
10.	Germany	19,421.77	1.8	0.7	3.02	1.66	0.53	1.37
11.	Canada	20,107.83	3.1	2.6	2.45	0.64	1.55	0.14
12.	USA	23,954.48	3.5	2.8	1.7	1.22	1.46	0.07

Source: World Bank, World Development Indicators(2006) and World Development Report(2013)

Figure III : Relation Between Initial GDP per Capita and Growth Rate of GDP per Capita
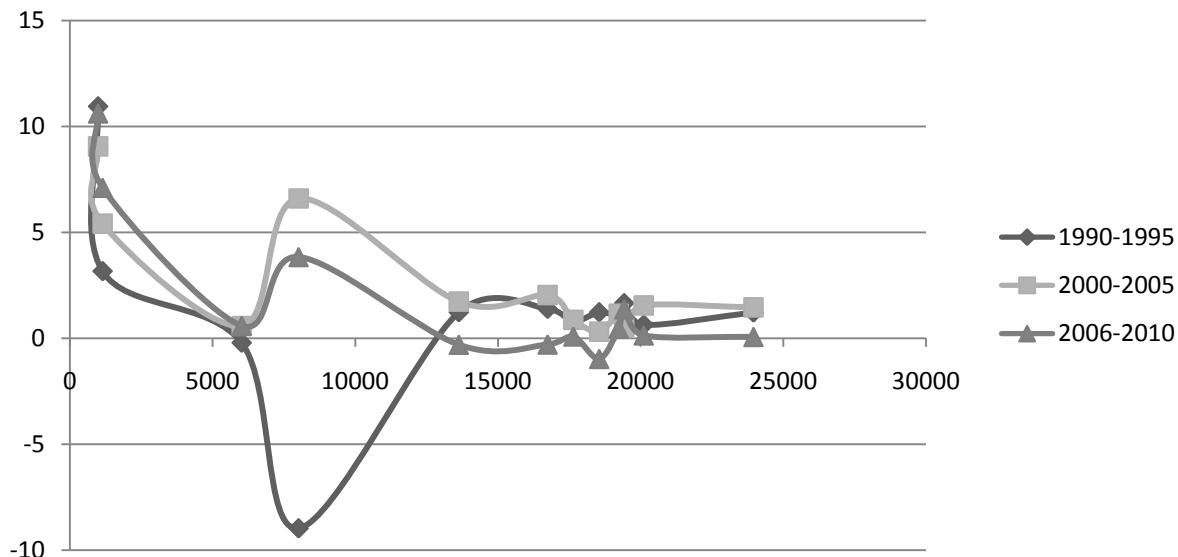
If the data of initial GDP per capita and Growth rate of GDP per capita are displayed in a Scatter diagram, it can be easily noticed that countries having higher initial GDP per capita in 1990 had low growth rates compared to countries having low initial GDP per capita.

Here on the X-axis Initial GDP per capita income at Purchasing Power Parity (PPP) in USD is

depicted, while on Y-axis Growth rate of GDP per capita is represented. If the outlier Russia is left out, which experienced subdivision and thus economic turmoil during the period, a normal tendency of poor countries growing faster and relatively well off countries growing slower can be easily seen from the above diagram.

IV. THE INDIAN SCENARIO

Even there is a statistical evidence of growing convergence within regions in a particular country, especially in China. But this tendency of convergence not only ceases to exist but to some extent reverses when it comes to convergence within India among its states. This is evident from the below diagram.

Figure IV Income Convergence : India , China and tha World 2004 - 2014
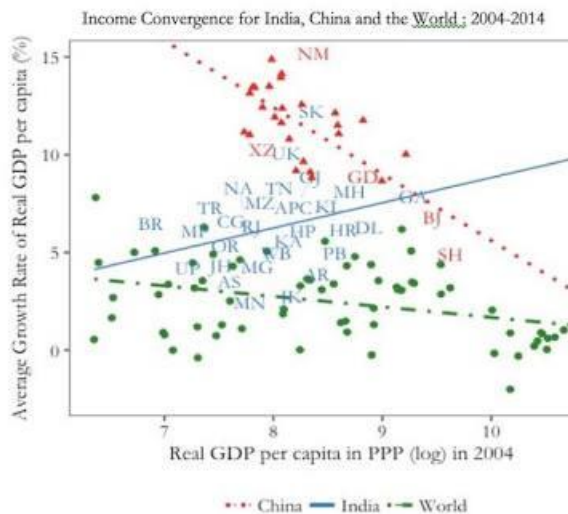
Source: Economic Survey of India 2016-17

Where the relation between initial level of GDP per capita and Growth rates of GDP per capita is strongly positive for the World and China, it is weakly positive for India. According to the convergence logic regional disparities should tend to diminish over time. Poor states should grow faster and richer states comparatively slower eventually leading to convergence among them. For example, since the per capita GSDP of Odisha in 1984 was 25 percent lower than the per capita GSDP of Kerala, traditional convergence theory would suggest that Odisha would experience higher growth rates over time, thereby reducing the gap between the two states. But empirically, richer states are growing at a fast pace thus increasing the regional disparity instead of reducing it. This can further be seen in the diagram below.

Figure V : Income Levels Over the Years in India All Indian States
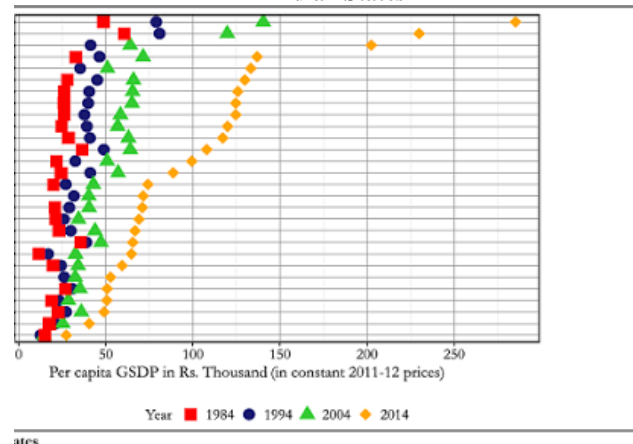
Source: Economic survey of India, 2016-17

As can be seen in the above diagram, the gap between Gujrat and Bihar, respectively states with the highest and the lowest per capita GSDP has increased with time and shows no sign of reduction. Even before this time period, during 1960-1995, Indian states did not show any sign of convergence. As per the study of BuddhadebGhosh, SugataMarjit and ChranjibNeogi(1998), a strong positive relation is evident between initial GSDP per capita for a state and rate of growth of GSDP per capita. They calculated the average annual growth rates of PCNSDP over the period of 1960-1995 for each of the 26 states. After omitting 5 outlier states, namely Arunachal Pradesh, Manipur (both starting from a low point and growing at a faster rate), Delhi, Sikkim and West Bengal (starting from a well off position andlagging behind in terms of growth rates), the data collected fitted a regression equation showing a strong positive correlation between the two variables. In other words, it is clear evidence in favour of divergence. Initially poor states have failed to pace up their growth rates and initially well-to-do states have grown richer.

Despite rapid overall growth, there is striking evidence of divergence or widening gaps in income across the Indian states, in sharp contrast to patterns within China and across the world. Mobilization of factors of production and increased trade in goods and services often leads to increased equalization. According to the big data set available from the Goods and Services Tax Network (GSTN), India is highly integrated internally, with considerable flows of both goods and services. The estimates for interstate trade flows indicate that cross-border exchanges between and within firms amount to at least 54 percent of GDP, implying that interstate trade is 1.7 times larger than international trade. New estimates based on the railway passenger traffic data reveal annual work-related

migration of about 9 million people, almost double of what the 2011 Census suggests. This indicates that labor and goods and services are quite mobile within India, which is considered the forces of equalization. Convergence happens essentially through trade and through mobility of factors of production. If a state/country is poor, the returns on capital must be high and should be able to attract capital and labor, thereby raising its productivity and enabling catch up with richer states/countries. But such is not happening within India.

One possible hypothesis to understand the underlying reason could be that convergence fails to occur due to lack of mobility of capital. Labor is enough mobile, as evident from the new estimates based on the railway passenger traffic data, trade of goods and services is also quite high within India, thus the other factor of production, namely capital, must be immobile to hinder the development of comparatively under-developed regions.

V. CONCLUSION

Regional growth and disparity have been topics of significance for the researchers working on Indian economy since independence. A major thrust of the economic policy, since the inception of planning process in 1950's, has been to foster balanced regional development with active support for industrialization in backward regions as well as through minimizing interregional disparities in costs and prices.

In spite of all these efforts regional differences have grown in size and intensity throughout the planning period. Richer states have grown at a faster pace while poor states have lagged behind. The fundamental basis of the convergence outcome is the neo-classical assumption of the law of diminishing marginal returns to capital. The existing excess capital in rich states crowds out any new investment in them thus makes poor states more attractive. But empirical evidences suggest that crowding out effect has not played its role in Indian states, instead the play of normal market forces increased the concentration of capital in already capital rich states. Poor states were not able to attract private capital, which means the return on capital in those states were not large enough to break the hypothesis of cumulative causation. The notion of high productivity of capital in poor states proved to be only notional and not real. Poor governance could make the risk-adjusted returns on capital low even in capital scarce states. Increased costs due to absence of infrastructure facilities, social overhead capital and business friendly environment outweighed the increased benefits due to higher marginal returns on capital. As per the definition of conditional convergence, unless the factors affecting the growth rates are improved, such convergence is not likely to take place between rich and poor states.

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