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Regional Inequality of West Bengal: A District Level Study

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This paper examines the inequality and convergence of districts of West Bengal using the neo-classical convergence theory. The district domestic product (DDP) has been used to understand the regional inequality pattern and convergence among the 18 districts of West Bengal. The estimated σ-convergence and unconditional β-convergence reveal uneven growth among the districts. The σ-convergence measured in terms of log SD and CV shows rising trend during the study period. The dispersion amongst districts, measured in terms of log standard deviation of per capita income, increased from 7.54 in 1993-94 to 8.87 in 2007-08. The estimated result of unconditional β-convergence also supports the hypothesis that rich districts grow faster than the poor ones. The positive and significant correlation coefficient between gross DDP and various socioeconomic variables also support economic reasoning that districts with higher per capita income have higher level of urbanization, literacy, banking infrastructure, per capita bank advances, number of MSMEs and employment in MSMEs. For reversing the tendency of divergence, backward districts have to be developed, especially through developing social and physical infrastructure.

Keywords: Growth, Inequality, Convergence
JEL Classification: R11, D63, O47

I. INTRODUCTION

In the neoclassical growth economics convergence theory plays an important role to study the egalitarian growth process of regions in an economy. In India since the inception of Five Year Plan one of the important goals is to reduce regional inequality in the country. Inequality within the country or among the countries is not desirable from the point of view of social and economic justice and most importantly extreme inequality invites socio-economic instability in the economy. There have been a slew of studies to magnify the picture of inter-state

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inequality by way of convergence technique developed by Barro and Sala-i-Martin (1995). To have a complete understanding of inequality in the economy and for effective policy formation, it is necessary to have an intensive study of the concerned economy. Therefore, along with inter-state study intra-state study of inequality and convergence is urgently needed.

One of the basic predictions of the neoclassical growth theory is that economies with lower capital-labour ratio tend to grow faster than the economies with higher capita-labour ratio. It predicts that if the economies are similar with respect to their tastes and preferences, and technology, then there is an inverse relationship between the initial level of per capita income and its growth rate due to implications of diminishing returns to reproducible capital. The lower the initial level of per capita income, the higher is the growth rate of per capita income. Within this neoclassical growth framework a number of studies have attempted to examine the differences in growth rates and convergence across regions and countries (Baumol 1986, Delong 1988, Lucas 1988, 1990, Barro and Sala-i-Martin 1995, Mankiw, Romer and Weil 1992, Cashin 1995, Coulombe and Lee 1993, Persson and Tabellini 1994, De la Fuente and Martin 1996).

This paper attempts to examine the inter-district disparities using convergence technique of neo-classical growth theory by taking into account the district domestic product of 18 districts.

The main emphasis of this paper is to concentrate on inequality and convergences among the districts of West Bengal which is an important area of development strategy research for the policy makers. The rest of the paper is organised as follows. Section II deals with the overview of West Bengal Economy, section III provides a review of available literature, section IV briefly describes the theoretical framework of neoclassical growth and convergence mechanism, section V illuminates on the database and methodology, section VI provides the explanations of the results and section VII contains conclusions and policy implications.

II. WEST BENGAL ECONOMY

The economic growth performance of the State was quite impressive during the first decade of the twenty-first century. West Bengal economy was grown at an average of more than 6 per cent during the last 3 Five Year Plan periods. In 2010-11, West Bengal was 6th largest economy in terms of Net Sate Domestic Product (NSDP) in the country with structural composition of 19.46 per cent from primary sector, 16.09 per cent from secondary sector and 64.45 per cent from tertiary sector.

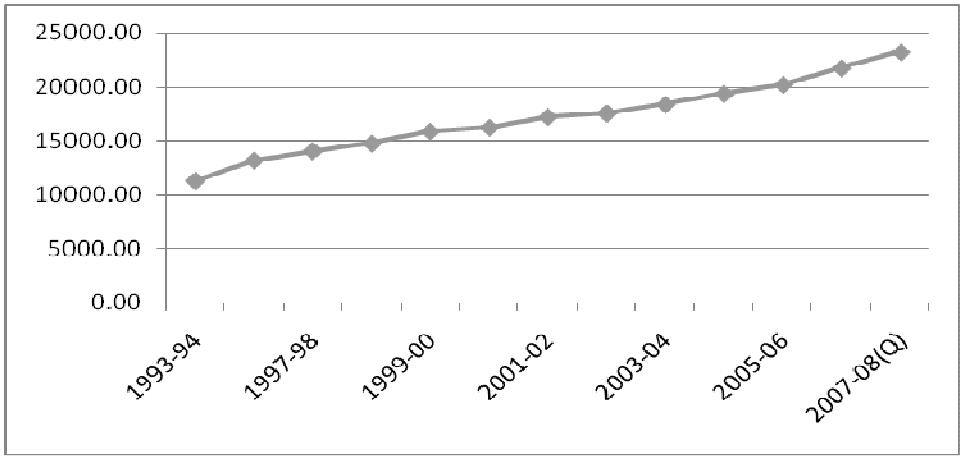
TABLE I
ANNUAL GROWTH IN NSDP OF WEST BENGAL AT CONSTANT 2004-05 PRICES

Sectors	Primary Sector	Secondary Sector	Tertiary Sector	Total NSDP	Per Capita Income
2005-06	1.97	3.24	9.32	6.30	5.12
2006-07	1.88	9.28	10.03	7.85	6.68
2007-08	5.06	8.09	8.79	7.78	6.67
2008-09	-2.86	-6.57	9.95	4.03	3.02
2009-10(P)	6.87	10.52	10.69	9.84	8.81
2010-11(Q)	-0.94	6.77	9.88	7.10	6.11
2011-12(A)	3.27	4.71	9.00	7.20	6.21
Average Growth	2.18	5.15	9.67	7.16	6.09

P=Provisional, Q=Quick, A=Advance
Source: Bureau of Applied Economics & Statistics (BAE&S), Government of West Bengal.

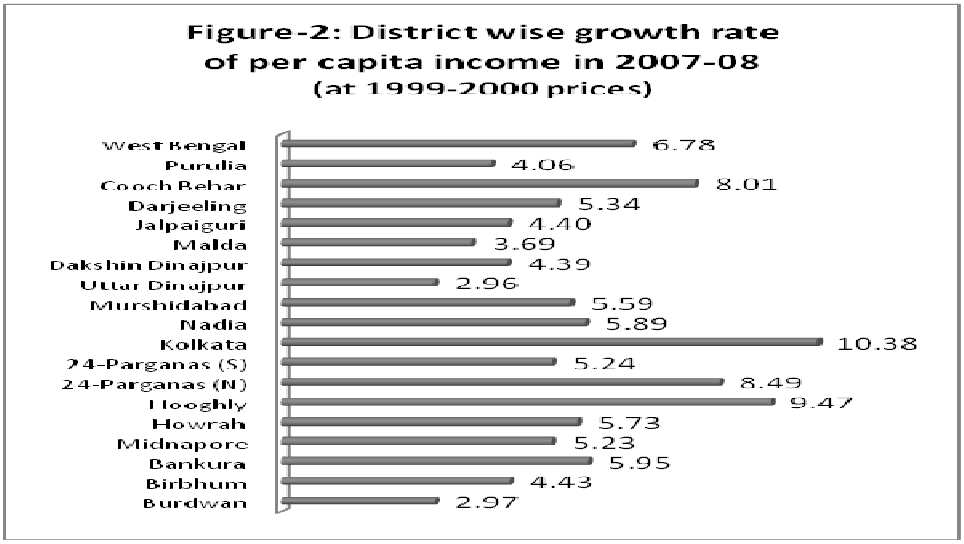
The per capita income is a commonly used economic indicator to measure the well-being of people in an economy. The annual growth of per capita income and NSDP along with its sector has been shown in Table I. Figure1 clearly depicted the upward trend in per capita income and from 1993-94 to 2007-08 the same has been increased twice.

Figure 1: Per Capita Income of West Bengal



Source: BAE&S, Government of West Bengal.

However, the overall growth of the state economy does not automatically mean the uniform growth of districts or in other words, the district economies are proportionally contributing towards the state income. Hence, inequality in per capita income among districts can be a good indicator to examine whether the districts are equally growing with the State economy or the advanced districts are growing well ahead of the backward districts. In terms of the growth economics we can say that whether the less developed districts are catching up with the developed one. This is depicted in Figure-2 where all the 18 districts are plotted in a bar-diagram according to their growth of per capita income in 2007-08. It is clearly seen that only four districts (i.e. Cooch Behar, Kolkata, North 24 Parganas and Hooghly) have surpassed the growth level of the State and rest of 14 districts are below the growth level of the State.



Source: BAE&S, Government of West Bengal.

III. REVIEW OF LITERATURE

The term "convergence" is often used in growth literature to imply a narrowing down of the gaps in incomes across regions and thereby a tendency towards a common equilibrium over time. Although the concept is quite old, the issue came to the surface since the 1950s and 1960s while economic historians such as Kuznets (1955), Rostow (1960), Gerschenkron (1962) and Gomulka (1971) indicate how poor countries grow faster than rich countries. Around this period the substantial formula of Solow (1956) and Swan (1956) give the

conceptual device that derives from the standard neo classical theory. The first statistical test of the hypothesis that poor economies will catch up with rich economies is found in Baumol (1986), which is regarded as a major contribution to the convergence debate. Baumol (1986) placed emphasis on the statement that convergence is identical with a negative relation between an initial level and growth rate of per capita output. Sala-i-Martin (1990) studies two concepts of convergence, using the transitional growth process in the neoclassical model, are unconditional β-convergence and σ-convergence, then an extended study in 1991 shows conditional β-convergence (βc).

While a large body of literature is devoted to inter-state disparities in India, intra-state disparities have received scant attention. One of the main reasons appears to be the absence of comparable information on variables of interest.

In India a number of research work have been worked out on the inter-state convergence study (Dholakia 1994, Sarkar 1994, Cashin and Sahay 1996, Ahluwalia 2001, Nair 1971, Chaudhury 1974, Majumdar and Kapoor 1980, Bajpai and Sachs 1996, Marjit and Mitra 1996, Rao, Shand and Kalirajan 1999, Dasgupta et al 2000 and Sachs, Bajpai and Ramiah 2002).

On the other hand, Jain, Sundaram and Tendulkar (1988), one of the earlier studies on intra-regional disparities, examined disparities across regions identified by the National Sample Survey Organisation (NSSO). They calculated six interrelated characteristics of poverty in about 56 NSS regions. Dubey and Gangopadhyay (1998) also look at intra-state disparities in the incidence of poverty at the NSS region level.

However, there are a few studies of convergence on inter-district inequality. Borooah and Dubey (2007) identified the 100 most backward districts distributed among several states in India in terms of a set of variables ranging from the incidence of poverty to immunisation rates of children at the district level.

Recently an inter-district inequality study on West Bengal has been done by Raychaudhuri and Haldar (2009). This paper calculates inter-district inequality among West Bengal's 17 districts and then highlights the disparity in physical and social infrastructure among them. The latter traces the ranking of districts over time and does not conclusively prove the main determining factors for the movement of inequality. However, a rank correlation analysis of per capita incomes with their physical and social infrastructure ranks gives sufficient hints about the causal relations between the two. But none of the studies have systematically analyzed inter-district disparities on the foundation of neo-classical growth theory.

IV. THEORETICAL FRAMEWORK

4.1 The Neo-Classical Growth Model and the Convergence Hypothesis

In the Solow model, capital deepening is at the heart of the growth process. The aim of the model is to explain the link between savings and growth, where savings are exogenous. This link is the process of capital accumulation. The model describes an economy in which the production function is:

$Y = A_t F(K_t, L_t)$,

where Y = output at period t, A_t = *technology at period t,* K_t = stock *of physical capital at period t,* and L_t = stock of labour force at period t.

The following properties are assumed for the above neo-classical production function:

1. F(•) is concave in K and L which implies a positive and diminishing marginal productivity of each input.
   $F_k(\bullet) > 0$ and $F_{kk}(\bullet) < 0$ for all K>0 and L>0;
   $F_L(\bullet) > 0$ and $F_{LL}(\bullet) < 0$ for all K>0 and L>0;
2. F(•) exhibits constant returns to scale.
   $F(\delta K_t, \delta L_t) = \delta.F(K_t, L_t)$ for all $\delta>0$.
3. F(•) satisfies *Inada Conditions:*
   $\text{Lim}_{k\to 0}(F_k) => \text{Lim}_{L\to 0}(F_L) =>\infty$
   $\text{Lim}_{k\to \infty}(F_k) => \text{Lim}_{L\to \infty}(F_L) =>0$

Proceeding from the Solow model and assuming a Cobb-Douglas production function of the type: $Y_t = K_t^{\alpha}(A_t L_t)^{1-\alpha}$ (1)

(where, Y = output, K = capital, L = Labour and A = Total Factor Productivity).

The steady state level of per capita income, y*, derived from equation (1) is given by

$$y^* = A_0 e^{gt} [s/(n+g+\delta)]^{\alpha/(1-\alpha)} \quad (2)$$

where s is the investment rate, g and n are the assumed exponential growth rates of A_t and L_t respectively. From equation (2) it is clear that steady state income level of a country depends on the six elements i.e. A_0, s, g, n, δ and α.

The Solow model predicts that economies converge to a steady state, where the key force that underlies the convergence effect is diminishing returns to reproducible capital and the process towards the steady state is called transitional dynamics.

Note that given the Cobb-Douglas production function, growth rate of per capita income has the form:

$$\ln y(t) - \ln y(0) = (1- e^{-\beta t})(\ln y^* - \ln y(0)) \quad (3)$$

Equation (3) represents the convergence equation introduced in empirical studies. This equation indicates that when an economy starts from a level of income lower than its steady state level, we should observe a positive rate of growth of y where β, as before, represents the speed of adjustment towards y*. Thus, there should be a force that promotes convergence in levels of per capita income. Empirically, we should observe that the per capita growth rate tends to be inversely related to the starting level of output per person. This implication of the solovian model is referred to as the absolute or unconditional convergence hypothesis. From the neo-classical growth theory unconditional convergence implies that all the above six elements i.e. $A_{0,}$ s, g, n, δ and α, are the same for the economies considered.

4.2 Types of Convergence

In growth theory, there are mainly two approaches to quantify the extent to which the growth process is leading to convergence or divergence in regional economies: the traditional approach, which is referred to as "sigma" convergence, and the neo-classical approach, known as the "beta" convergence.

Sigma - convergence

The "sigma" convergence measures the dispersion of real per capita income or product between regions based on the standard deviation of the cross-section series. When the standard deviation tends to fall over time, such a result indicates that the differences of the per capita income between regions in absolute terms decrease with the passage of time, which is an evidence of convergence. On the other hand, divergence implies that the standard deviation of the series in terms of per capita income increases over time. An alternative way of measuring the "sigma" convergence is to use the coefficient of variation, which is obtained by dividing the standard deviation of the series by the mean of the sample.

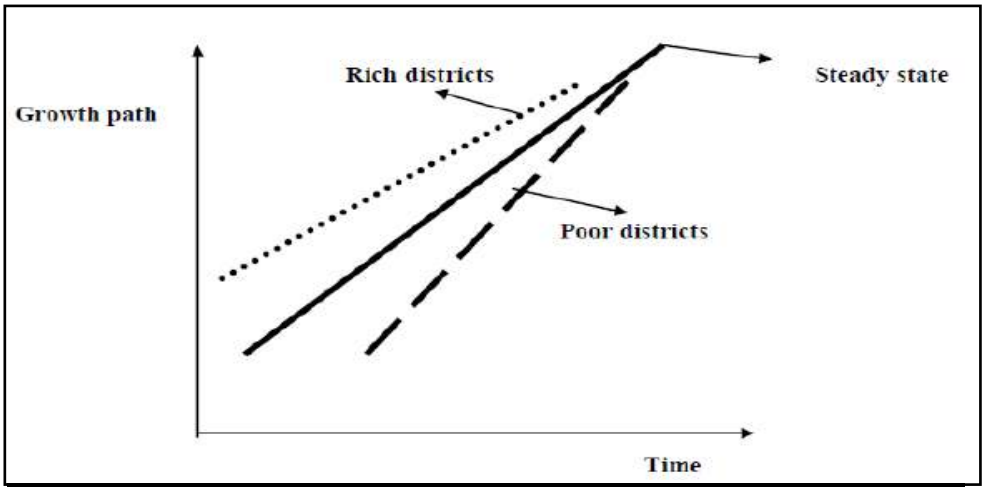
Beta - convergence

The "beta" convergence of the neo-classical approach is obtained by a regression analysis estimating the growth of per capita income of a certain period of time on the initial level of per capita income. The regression coefficient "beta" with a negative sign indicates that regions with a lower initial level of per capita income grow more rapidly than regions with a higher initial level of per capita income.

Further, the neo-classical theory distinguishes two types of convergence, unconditional and conditional convergence. When it is assumed that all regions (countries) converge to the same steady state point, the convergence is said to be unconditional. In this case, β is obtained without considering in the estimation the set of the structural variables, since it is assumed that the economies do not differ significantly in their levels of technology, investment ratio, industrial structure, human capital qualification and other structural factors. In this context, it is more likely to find unconditional convergence when the model is tested for regions of the same country which are more homogeneous, since they share the same legal system, similar technology, similar educational level, etc. On the contrary, when the economies have different structures, it is assumed that they converge to a different steady state point. In this case, convergence is said to be conditional and β is obtained by considering, in the estimation, the set of the conditioning structural factors which are supposed to influence the growth of the per capita income.

In the neo-classical model, diminishing returns to capital is the explanation why poor regions (countries) grow faster relatively to the rich regions in terms of their per capita income showing "beta" convergence. Diminishing returns of capital implies that the rate of return is negatively related to the stock of capital per head so that, other things being equal, countries with low amount of capital per head are predicted to grow faster.

Figure 3: Convergence Mechanism



Source: Author's derivation.

V. DATABASE AND METHODOLOGIES

In this paper we have considered 18 districts since the data for West Midnapur and East Midnapur are not available for the whole study period. To make the data comparable both districts have been treated as a single district "Midnapur."

We have used district level per capita income from 1993-94 to 2007-08 at 1999-2000 constant prices. However, the per capita income from 1993-94 to 1999-2000 is available at 1993-94 constant prices and 1999-2000 to 2007-08 at 1999-2000 constant prices. To make these two sets of data comparable, the 1999-2000 series of district per capita income has been extended backward. The price correction factor (defined as the ratio of implicit deflator for 1999-2000 series to the 1993- 94 series) is used for this purpose to have the consistent series of district per capita income with the 1999-2000 series data. The price correction factor is calculated as the average of the price implicit deflator of the common years which are 1999-2000 to 2003-04.

To examine convergence of growth among Indian States, this study follows Barro and Sala-i-Martin, (1995 and 1992) principle of convergence. There are two standard ways of examining the presence or absence of unconditional convergence. The first measure is σ-convergence which states that the divergence in growth rate among the 18 Districts tends to decline over time. The second measure is absolute or commonly known as β-convergence and it implies that poor economies tend to grow faster than the initial richer economies. In our case, the economies are the 18 districts of West Bengal. But β-convergence is not a sufficient condition for σ-convergence. This means even if there is β-convergence it does not convey σ-convergence.

To measure Sigma convergence, we have used Log of Standard Deviation (SD) and Coefficient of Variation (CV).

This paper also examines σ convergence by computing the dispersion of district per-capita income. The following formula has been used to estimate the standard deviation for each year:

$$SD_t = \sqrt{\frac{1}{n}\sum_{i=1}^{n}\left(\bar{y}_t - y_{it}\right)^2} \qquad \text{(a)}$$

where SD_t stands for standard deviation at period t, $ln\bar{y}_t$ and lny_{it} represent the average per capita income of districts at period t and the per capita income in the district i at period t respectively and n is the number of districts. If SD_{t+1} is less

than SD_t, the σ convergence exists. However, if SD_{t+1} is more than SD_t, then σ convergence does not exist.

In order to examine whether the districts in West Bengal have converged in terms of per-capita income, we have considered the absolute convergence by applying the following formula (Barro and Sala-i-Martin 1995):

$$\left[\frac{1}{T}\right]\ln\left[\frac{y_{iT}}{y_{i0}}\right]=\alpha-\beta\ln[y_{i0}]+U_{i0,T} \qquad \text{(b)}$$

where

$\left[\frac{1}{T}\right]\ln\left[\frac{y_{iT}}{y_{i0}}\right]$ = Natural logarithm of growth of per capita District Domestic Product

α = intercept term

$\beta = \left[\frac{1-e^{-bT}}{T}\right]$

$\ln[y_{i0}]$ = Natural logarithm of initial per capita District Domestic Product

$U_{i0,T}$ = Disturbance term with mean zero and variance σ2

b = Speed of convergence

Now if, β>0, the equation (b) established the fact that there is a negative association between the initial per capita income and the growth rate of per capita income. The economic implication of this fact is that poor economies tend to grow faster than rich economies, which is the case of absolute β convergence.

VI. RESULTS AND ANALYSIS

The results seem to suggest that the Coefficient of Variation (CV) has been increasing since 1993-94 with a steep slope. This result clearly shows the growing divergence of districts in terms of per capita income that means rich districts became richer and poor districts poorer.

From the line diagram of CV, it can easily be seen that during 1996-97 to 2002-03 the slope is less steep than the next remaining part, which depicted the fact that during the second phase the per capita income of districts diverged at a higher rate than the first phase. Another interesting fact is that during 1993-94 to 1996-97 the CV has been reduced a little from 0.17 to 0.16.

TABLE II

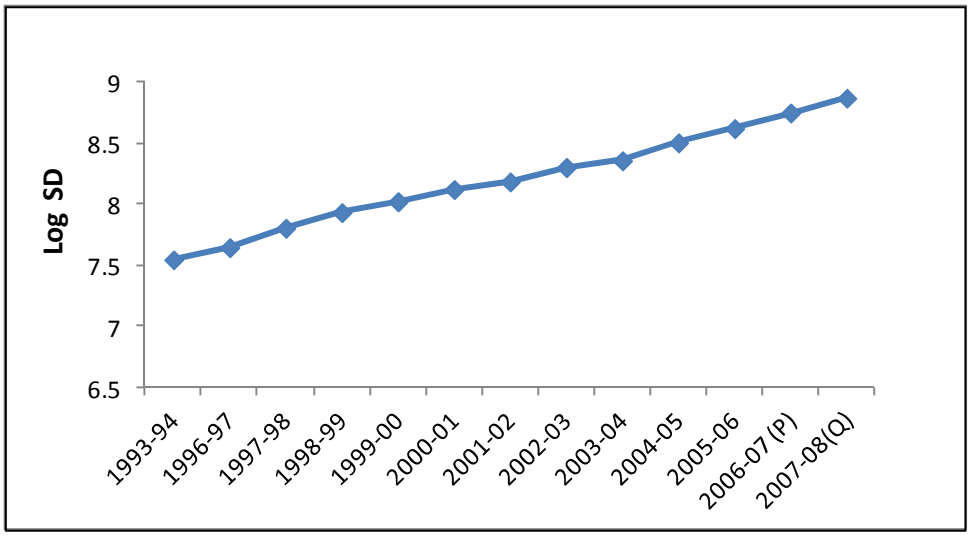
SIGMA CONVERGENCE

Log SD and CV of Gross District Domestic Product

Year	Mean	SD	Log SD	CV
1993-94	11054.78	1897.811	7.5484562	0.171673
1996-97	12960.87	2097.027	7.648276	0.161797
1997-98	13981.53	2459.872	7.8078645	0.175937
1998-99	14502.14	2794.246	7.9353176	0.192678
1999-00	15662.93	3055.642	8.0247451	0.195088
2000-01	16011.25	3375.8	8.1243876	0.210839
2001-02	16873.18	3593.457	8.1868698	0.212969
2002-03	17050.96	4046.55	8.30562	0.237321
2003-04	17749.91	4274.395	8.3603978	0.240812
2004-05	18452.66	4951.03	8.5073508	0.26831
2005-06	19232.2	5564.366	8.6241383	0.289326
2006-07 (P)	20523.03	6327.265	8.7526234	0.308301
2007-08(Q)	21764.14	7141.161	8.8736307	0.328116

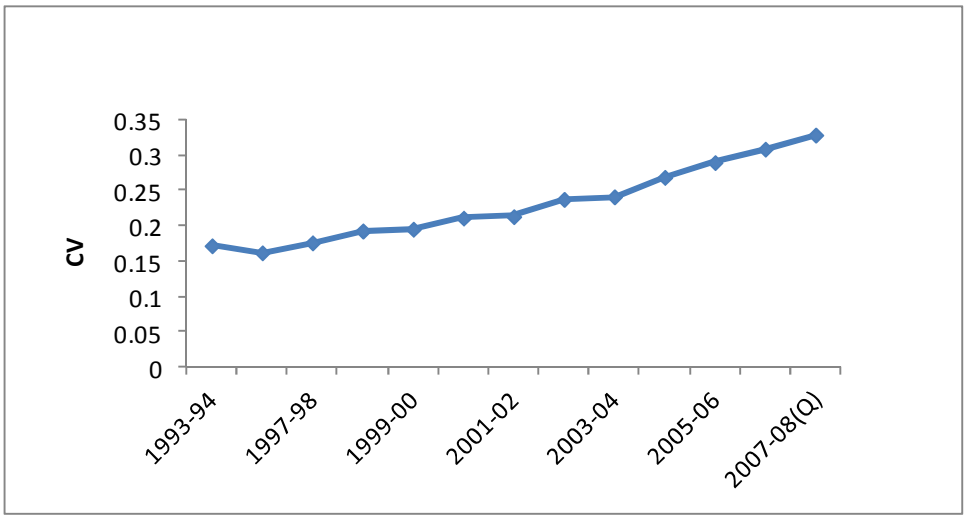
Source: Author's calculation.

Figure 4: Log Standard Deviation (SD)



Source: Author's derivation.

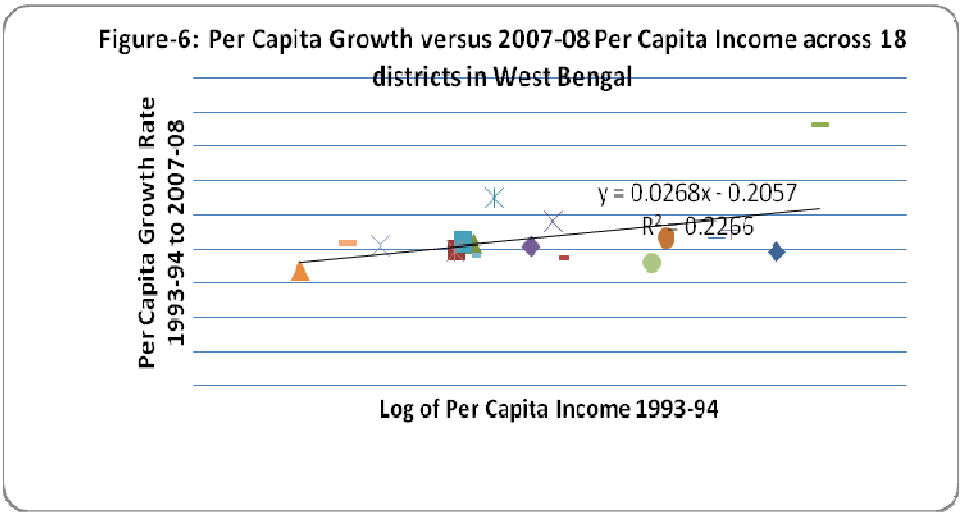
Figure 5: Coefficient of Variation (CV)



Source: Author's derivation.

Unconditional Beta Convergence

Before going to the estimation of unconditional β convergence based on equation (2), here we present a scattered diagram (Figure 5) which depicts the relationship between initial per capita income of 1993-94 and the average growth of per capita income during 1993-94 to 2007-08.



Source: Author's derivation.

As shown in Figure 6, there is an upward slope which relates the initial income and rate of growth of income indicating the absolute divergence across the 18 districts in West Bengal.The positive correlation between the two variables clearly indicates that initially rich districts have higher growth rate, thus initially lower income districts will not catch up with the higher initial income districts.

In this paper we have estimated unconditional β convergence for the period 1993-94 to 2007-08. To estimate the regression result the per capita income of 1993-94 has been treated as initial income. Regression estimates are presented in Table III.

TABLE III

REGRESSION RESULT FOR UNCONDITIONAL β CONVERGENCE

Estimated	*Coefficient Value*	*Standard Error*	*t Stat*	*P-value*	R Square
Intercept	(-) 0.2057	0.1151	(-) 1.7866	0.0929	0.2265
β	0.0268	0.0123	2.16	0.0458	

Source: Author's calculation.

As shown in Table III, the estimated parameter of the regression equation, which is 0.0268 for the period 1993-94 to 2007-08, supports the absolute negative β convergence or absolute divergence. That means the rich districts tend to grow faster than the poor districts. However, the regression result shows that the relation between the initial per capita income and the rate of growth of per capita income is low, which is revealed by the coefficient of correlation or value of R square, which is 0.02265.

Sources of Inter District Disparity

After looking at the trend of inequality and convergence (divergence) in an economy, for policy implications, it is imperative to find out the sources that are responsible for the inequality or convergence (divergence). To gauge the source of inequality among the districts, we have used the correlation coefficient between per capita Gross District Domestic Product (GDDP) and some critical variables which have economically established relation with the former. Here we have taken the following variables: percentage of urban population to total population, literacy, number of established micro and small enterprise, Employment in micro and small-scale industries, number of bank offices and per capita bank advances.

TABLE IV

CORRELATION BETWEEN PER CAPITA GDDP AND OTHER VARIABLES

Variables	Percentage of urban population to total Population	Literacy	No. of bank offices	Per Capita bank advances	No. of Established Micro & Small Enterprise	Employment in micro & small scale industries
Per Capita GDDP	0.922**	0.711**	0.908**	0.884**	0.795**	0.773**

Source: Author's calculation.
Note: ** Indicates correlation is significant at 0.01 level (2-tailed).

It is convention that all the above variables (i.e. percentage of urban population to total population, literacy, number of established micro and small enterprises, employment in micro and small-scale industries, number of bank offices and per capita bank advances) have positive correlation with the prosperity of an economy. The estimated results in Table III also support this economic logic with high correlation values.

VII. CONCLUSION AND POLICY IMPLICATIONS

This paper measures the regional disparities of 18 districts of West Bengal during the period of 1993-94 to 2007-08. The overall finding of this study is of inequality and divergence across districts. This implies the advanced districts have tended to leapfrog during the study period and the backward districts have lagged behind.

The estimated σ-convergence and unconditional β-convergence revealed the uneven growth among the districts. The σ-convergence measured in terms of log SD and CV showed rising trend. The dispersion amongst districts has been increased from 7.54 (log SD) and 0.171 (CV) in 1993-94 to 8.87 (log SD) and 0.328 (CV) in 2007-08. The estimated result of unconditional β-convergence also supports the hypothesis that rich districts grew faster than the poor ones. The correlation coefficient between per capita Gross District Domestic Product and other crucial variables also strengthens the common economic logic.

To arrest this tendency of divergence backward districts have to be developed in terms of social and physical infrastructure so that economic activities could take place in a natural way. Massive industrialisation in the backward districts is also a way out in this regard.

REFERENCES

Ahluwalia, M.S. 2001. "State Level Performance Under Economic Reforms in India." Working Paper No. 96, Center for Research on Economic Development and Policy Reform, Stanford University.

Bajpai, Nirupam and Jeffrey D. Sachs. 1996. "Trends in Inter-State Inequalities of Income in India." Development Discussion Paper No. 528, Harvard Institute for International Development, Harvard University.

Barro, R. J. and X. Sala-i-Martin. 1992. "Convergence." *Journal of Political Economy,* 100(2):223-251.

——1995. *Economic Growth.* New York: McGraw-Hill.

Baumol, W. J. 1986. "Productivity Growth, Convergence, and Welfare: What the Long-Run Data Show." *American Economic Review*, 76:1072–1085.

Borooah, V. and Amaresh Dubey. 2007. "Measuring Regional Backwardness: Poverty, Gender and Children in the Districts of India." *Margin – The Journal of Applied Economic Research*, 1 (4):403-440.

Bureau of Applied Economics & Statistics. n.d. *Economic Review 2009-10*. Development & Planning Department, Government of West Bengal.

——.n.d. *State Domestic Product & District Domestic Product of West Bengal-2009.* Development & Planning Department, Government of West Bengal.

Cashin, P. and R. Sahay. 1996: "Internal Migration, Centre State Grants and Economic Growth in the States in India." IMF Working Paper, WP/95/66.

Cashin, Paul. 1995. "Government Spending, Taxes and Economic Growth." *IMF Staff Papers,* 42: 237-69.

Chaudhury, D. Mahindar. 1974. "Behaviour of Spatial Income Inequality in a Developing Economy: India 1950-76." Paper presented at the Ninth Conference of the Indian Association for Research in National Income & Wealth.

Coulombe, S. and F. Lee. 1993. "Regional Economic Disparities in Canada." University of Ottawa Research Paper 9317E.

Dasgupta, D., P. Maity, R. Mukherjee, S. Sarkar and S. Chakroborty. 2000. "Growth and Inter State Disparities in India." *Economic & Political Weekly*, 35(27): 2413-22.

De la Fuente, A. and J. M. Marín. 1996. "Innovation, Bank Monitoring and Endogenous Financial Development." *Journal of Monetary Economics*, 38: 269--301.

Dholakia, Ravindra H. 1994: "Spatial Dimension of the Acceleration of Economic Growth in India." *Economic & Political Weekly*, 29(35): 2303-9.

Dubey, A. and S. Gangopadhyay. 1998. "Counting the Poor: Where are the Poor in India.?" *Sarvekshana: Analytical Report, No. 1*, February.

Gerschenkron, A. 1962. *Economic Backwardness in Historical Perspective*. Cambridge, MA: Bellknap Press.

Gomulka, S. 1971. *Inventive Activity, Diffusion and the Stages of Economic Growth.* Monograph, Institute of Economics, Aarhus, Denmark.

Jain, L. R., K. Sundaram and S. D. Tendulkar. 1988."Dimensions of Rural Poverty: An Inter-regional Profile." *Economic & Political Weekly*, 15 November, 2395-2408.

Kuznets, S. 1955. "Economic Growth and Income Inequality." *American Economic Review*, 45: 1-28.

Lucas, Robert. 1988. "On the Mechanics of Economic Development." *Journal of Monetary Economics*, 22 (1): 3–42.

——1990. "Why Doesn't Capital Flow from Rich to Poor Countries." *American Economic Review*, 80: 92–96.

Majumdar, Grace and J. L. Kapoor. 1980. "Behavior of Inter-state Income Inequalities in India." Paper presented at the Twelfth Conference of the Indian Association for Research in National Income & Wealth.

Mankiw, N. G., D. Romer and D. N. Well. 1992. "A Contribution to the Empirics of Economic Growth." *The Quarterly Journal of Economics*, 107: 407-37.

Marjit, S. and S. Mitra. 1996. "Convergence in Regional Growth Rates, Indian Research Agenda." *Economic and Political Weekly*, 31(33): 2239- 42.

Nair, K. R. G. 1971. "A Note on Inter-State Income Differentials in India, 1950-51 to 1960-61." *Journal of Development Studies*, 7(1): 441-47.

Persson, Torsten and Guido Tabellini. 1994. "Is Inequality Harmful for Growth?" *American Economic Review*, 84(3):600-621.

Rao, M.G., R. T. Shand and K. P. Kalirajan. 1999. "Convergence of Incomes Across Indian States - A Divergent View." *Economic and Political Weekly*, XXXIV(13).

Raychaudhuri, Ajitava and Sushil K. Haldar. 2009. "An Investigation into the Inter-District Disparity in West Bengal, 1991-2005." *Economic & Political Weekly,* XLIV:26-27.

Rostow, W. 1960. *The Stages of Economic Growth: A Non-Communist Manifesto.* Cambridge, UK: Cambridge University Press.

Sachs, J. D., N. Bajpai and A. Ramiah. 2002. "Understanding Regional Economic Growth in India." *Asian Economic Papers*, 1(3): 32-62.

Sala-i-Martin, X. 1990. "On Growth and States." Ph.D. dissertation, Harvard University.

Sarkar, P.C. 1994. "Regional Imbalances in Indian Economy over Plan Periods." *Economic & Political Weekly,* XXIX(2), March 12.

Shand, R. and S. Bhide. 2000. "Sources of Economic Growth." *Economic & Political Weekly*, 35 (42).

Solow, R. M. 1956. "A Contribution to the Theory of Economic Growth." *Quarterly Journal of Economics,* 70 (1): 65-94.

Swan, T. W. 1956. "Economic Growth and Capital Accumulation." *Economic Record*, 32:334–61.

APPENDIX

Estimates of Per capita Income by District in West Bengal at Constant (1999-2000) Prices

(In Rupees)

District	1993-94	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Burdwan	14101.61	16748.41	16673.20	17882.85	18335.00	18404.37	19559.89	20612.31	21327.12	22917.29	23374.17	24720.99	25456.25
Birbhum	9846.45	11643.23	12203.51	13461.05	13528.99	13621.60	14869.74	15027.78	15232.63	15212.37	15781.43	17089.26	17846.57
Bankura	10039.22	12227.68	13148.64	13072.69	14619.93	15365.14	16089.09	15302.32	15431.04	16031.31	16695.76	17727.19	18781.78
Midnapore	10977.39	13046.63	13221.53	13298.96	15505.29	15994.81	16409.48	17852.45	18092.19	20199.49	19797.90	21474.58	22597.81
Howrah	10281.25	11284.73	13055.72	13766.84	15506.86	16499.39	17286.25	17613.27	18495.49	19602.34	20337.29	22219.68	23492.43
Hooghly	12466.78	15348.44	14695.22	15124.57	16904.55	17075.89	18442.66	17858.75	19453.95	20224.31	21016.06	21818.48	23885.31
24-Parganas (N)	13190.81	14673.01	17008.29	18366.17	16268.87	16043.26	17119.06	17680.09	18840.79	20075.35	21619.41	23276.09	25251.38
24-Parganas (S)	11062.26	12280.17	13121.05	13792.84	14892.62	15445.48	16072.54	15969.35	16343.22	16629.33	16967.86	18409.62	19374.56
Kolkata	14810.23	17419.30	19352.04	22111.28	25262.14	27161.41	28470.61	30162.27	31827.20	34403.75	37994.20	42179.15	46556.12
Nadia	10715.36	13422.21	14317.46	14772.66	16089.56	15497.76	16768.77	17178.88	17342.32	17219.84	17821.41	18614.38	19710.31
Murshidabad	9924.88	11894.15	12516.23	13027.52	13924.17	13765.70	15004.23	14679.65	15828.32	16009.06	16812.99	17728.31	18719.95
Uttar Dinajpur	8267.47	9671.48	10036.96	10747.79	11249.70	11574.70	11333.17	11949.95	12497.87	11863.75	12851.09	13334.60	13729.71
Dakshin Dinajpur	9048.03	11054.30	11262.14	12162.36	14034.56	14812.03	15080.62	15433.19	15437.74	15177.10	15855.90	16038.43	16742.01
Malda	9833.06	11973.84	13199.34	13003.73	14638.87	14692.93	15999.52	14758.96	15419.10	16106.85	16285.82	17133.61	17764.99
Jalpaiguri	12262.24	13819.17	14626.97	15245.96	16202.85	16120.90	16559.45	16994.07	17419.18	18041.55	18500.75	20186.16	21074.46
Darjeeling	13409.39	14416.33	18424.31	16900.94	18923.52	19569.82	20683.18	21114.93	21712.30	22744.00	23826.15	25266.82	26615.15
Cooch Behar	10031.37	11642.01	12168.25	12869.06	12987.18	13483.35	13714.30	13696.97	14983.43	15463.09	16419.76	16524.42	17847.27
Purulia	8718.17	10730.50	12636.61	11431.19	13058.00	13074.01	14254.62	13032.05	13814.56	14227.19	14221.58	15672.85	16308.42
West Bengal	11310.37	13192.26	14075.42	14755.42	15888.36	16243.86	17225.22	17567.37	18373.86	19366.79	20211.90	21752.79	23228.71

Source: Basic Database from Bureau of Applied Economics & Statistics (BAE&S), Government of West Bengal and the whole series converted into the 1999-2000 base year by the author.