

Correlating Growth with Well-being during Economic Reforms Evidence from India and China

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Abstract: This paper investigates the hypothesis that economic growth is critical in inducing well-being during economic reforms. The regional (16 Indian states and 28 Chinese provinces) level study of India and China show that the quality of growth has been essential for well-being. We estimate level of economic well-being by aggregating different socio-economic indicators through multivariate statistical method of factor analysis. We estimate economic growth (per capita income, real) along with their well-being level for four different sub-periods since 1978/80-2001 for all regions. Our empirical results confirm that differential level of well-being across regions is correlated with the quality of growth.

Key Words: Growth, Well-being, Economic Reforms, Multivariate statistical method, India, China

JEL Classification: O, C, R11

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1. Introduction

This paper attempts to empirically show the correlation between growth and well-being in India and China during their respective economic reform processes. India and China, two of the most populous countries of the world, and which combine to constitute nearly one-third of the world's population, have undertaken fairly extensive economic reforms.

Since the adoption of the economic reform policy in 1978, the economic growth performance of China has been truly dramatic compared to any of the present day developed or developing countries. Similarly, in terms of social progress, welfare and poverty reduction, the Chinese performance has been quite remarkable in the last two decades! On the other hand, in India, the second most populous country and largest democracy in the world, growth performance since the initiation of the economic reform policies in 1991, has been relatively modest.¹

We attempt to discuss the growth and well-being inter-linkage at the national level policy changes since reform; and further we investigate the regional level performance in terms of economic growth and well-being in countries.

It is noteworthy here to quote the Human Development Report 2003. '*China and India, together containing a third of the world's population, have enjoyed tremendous economic growth over the past decade. Their successes in advancing average well-being imply major improvements for a large portion of humanity.*' (Box3.4, HDR, UNDP 2003).

We initially intend to explore the variation in terms of economic strategies that India and China adopted to accelerate the economic growth.² However, national performance depends on the necessary inputs from the different regions, and hence we focus exclusively at the regional and/or sub-national level variations to see how the regions differ in terms of their economic performance. First, we look at the regions in terms of their growth performance, and then focus on the quality of life, as that includes the overall social progress of a country.

This paper is organised as follows. Section 2, presents the interrelationship of growth and well-being during reform process. We document our conceptual framework, the literature survey and also the framework under which we briefly define well-being in our present paper respectively. Section 3 discusses the estimation methodology and data sources for both India and China. In the following section, we compare and contrast economic reform strategies in

¹India has seen record growth in the second quarter of fiscal year between July and September 2003, as the gross domestic product(GDP), or the overall economic growth went up by a record 8.4 percent

² We interchangeably use here the words, well-being, quality of life, standard of living, welfare and development.

both countries. Empirical evidence shows in Section 5, how at the national level economic reform leads to a higher rate of investment, trade expansion, employment growth and higher labour productivity. We present, Section 6, more empirical evidence to show that at the sub-national level, there has been a crucial link between growth and well-being, which would lead to a poverty reduction. The final Section 7 concludes with our main findings in this paper.

2. Economic Reforms, Growth and Well-Being: A Synthesis from Literature

In this section, initially we present conceptual framework of our paper. Then we briefly discuss some evidence of inter-linkage from the existing literature. Finally, the concept of well-being has been described briefly, which we estimate by our proposed methodology for both Indian states (16 major Indian states) and Chinese provinces (28 Chinese provinces).

2.1. Conceptual Framework

We propose a framework to explore the linkages between economic growth, and well-being during economic reforms which would lead to a sustainable development for society. Economic policy changes are often triggered by the logic of low-level equilibrium of output level and employment. To overcome this low level of equilibrium trap, the governments/states often adapt policies so as to achieve high level of income, and employment growth. To embark upon this road to growth and development, coherent policy instruments are essential to meet the policy targets³. Perhaps, the crucial role here is the extent to which state/governments are putting the different policy packages together and implementing them subsequently to overcome the economic inefficiencies and problems with resource allocation. In our analysis, we study the extent to which the economic reforms help a country to adapt new policy changes to remove inefficient resource allocation, regulation and other controls that unnecessarily hinder the growth potential of economies.⁴ The key features of economic reform policy involve macroeconomic stability, removal of quantitative restrictions (QRs) on imports, reduction in import tariffs, and privatisation of the key state-owned enterprises,

³ During 1950s, Tinbergen advocated three different types of policy changes depending on the degree of underlying policy structure. These are namely, first, quantitative policy constitutes a quantitative change in given instruments of policy (e.g., changes in tax rates); secondly, qualitative policy changes for changing economic structure, keeping the foundation intact (e.g., a change in the type of taxes implemented), and finally, is economic reform as an instrument to changes in foundations, which he defines as ‘changes in more fundamental features of social organisations are the most far-reaching types of policy’ (as quoted from Bruno 1989). For interested readers, a classic in this literature is that of Knight, as he writes ‘Ethics and Economic Reform’ (1939).

⁴As Stiglitz (2002) noted that ‘technically reform can mean any change, or at least any change perceived by those perpetrating it to be an improvement on the status quo’.

removal of state sponsored subsidies, reform in the labour markets, reform of financial and banking sectors, and also other judicial and administrative restructuring to reduce the bureaucratic hassles.

During the economic reform process, crucial elements are to provide incentives for efficient players in the market. The reform policies are supported to dismantle different weaknesses in economic system, which hinder potential for growth and development. The policies are directed towards the freeing up of foreign trade and also the decontrol and deregulation of industries and service sectors. The opening up of trade encourages domestic firms to diversify their products and export structure and helps initiate policies to become cost effective by introducing technical changes in the production structure. The import competing industries do change their production structure, and become dynamic through incorporating new technologies, either by investing in R&D, or through foreign collaboration and joint ventures.

In the empirical trade theory literature, we find that there are number of possible channels through which trade liberalisation helps countries; namely, improved resource allocation which reduces costs of production; raises productivity of the overall economy, and also in the sector; bringing new technologies in the production system help raise economic potential. Foreign investment induces economies resource base and thereby growth. With more investment, productivity increases, and thereby provides more opportunity for efficient production system and profit turnover. Also, with the new technologies, the cheap and good quality intermediate inputs create more possibilities for diversified export base and structure. Hence trade expands, and economies grow.⁵

In our framework we attempt the growth and well-being components of quality of life to correlate in an era of reform policies. We measure well-being with different dimensions of the socio-economic characteristics that foster a healthy environment for growth and development.

Since the early 1980s, the Bank-Fund initiated stabilisation and structural adjustment policies to bring macro-economic stability and steady rise in the growth. But it could not bring expected outcome over the decade. Thus these policies received much criticism for their alleged failure to address and/or to correct the economic condition of the developing countries.⁶

⁵ For seminal contribution on the theory of opening up and/or trade reform to better economic outcome, see Bhagwati (1978), Krueger (1978), Dornbusch (1992) for detailed theoretical argument.

⁶ See Stiglitz (2002) and Muqtada (2003) for elaborate discussion on this issue.

With increasing economic integration of the countries around the world, there has been a rising fear of exclusion from the social safety net, and more generally the concern about the *quality of life and/or well-being*. We know that many of the developing countries have registered an increase in economic growth (of per capita income growth), but failed to progress in terms of social indicators (literacy, infant mortality, etc), so the focus is now shifting towards a qualitative nature of this growth and development. According to Sen, the realisation of human *capabilities*, which enlarge the range of human choices, is essential for a broader notion and measure of economic well-being.⁷

Perhaps, India and China have been able to successfully integrate the qualitative nature of the growth as they could able to reduce human poverty with rising growth rate during the reform period.

2.2. Review of the Literature

In this sub-section, we document briefly the importance of growth in raising standard of living. The theory of growth was proposed by classical economists, such as, Smith, Ricardo and others in eighteen century. Perhaps, after the *Great Depression* in 1930s, Keynesian model has invoked the new functioning of the real world. The primary focus of the Keynesiansim is to show how the steady state of the economy is influenced by the equilibrium values of output and employment through macropolicies.⁸ Later on the Solow-Swan growth model, within a neo-classical framework, emphasised the role of capital accumulation to bring about changes in capital-labour ratio.⁹ Then with a new set of Growth Theories; Romer (1986), Lucas (1988) and Grossman and Helpman (1991), have endogenised the process of technological progress, where the model is extended to include a crucial role to human capital and also to the share of national product devoted to investment in education.

Perhaps, the question is to identify the role of growth in helping advance the human development and/or well-being level of countries.

This has motivated policy makers and researchers to explore possibilities to include other socio-economic indicators, part from the income growth rate, as a part of a better indicator for human progress in terms of development. The concept of accommodating other socio-economic indicators have taken up a significant amount of attention, since the United

⁷ See Sen (1983) for a detailed conceptual discussion.

⁸ The basis of modern macroeconomic thought originated from the General theory, Keynes (1936).

⁹ See Solow (1956), and Swan (1956).

Nations (1954) expert group recommended that, in addition to real per capital national income quantitative measures in the fields of health education, employment, and housing should be used for assessing the standard of living. So, real national income was to be supplemented by a further set of indices, reflecting various constituents and determinants of aggregate development/well-being (UN 1954). The studies by Adelman and Morris (1967) also examined the interactions among the processes of social, economic and political change with the level and pace of economic development.

One of the significant contributions to measure the quality of life with some social indicators was proposed by Morris D. Morris (1979) who, constructed the Physical Quality of Life Index (PQLI), and later by Dasgupta and Weale (1992). UNDPs Human Development Index (HDI, 1990-2003) had brought together the production and distribution of commodities and the expansion and use of human capabilities in their measure. All these indices essentially focus on choices—on what people should have, be and do to be able to ensure their own livelihood, as they are based on indicators like, life expectancy, educational attainment, and per capita income, civil and political rights.¹⁰ These are thus some of the studies that have looked beyond the per capita income level, for a more comprehensive yardstick for development and welfare. We have outlined above that economic policy changes and their successful implementation are crucial to accelerate growth and sustainable welfare. Perhaps this is one of the most heated debates in the economic literature as varying degrees of cross-country evidence suggest that the economic reform policies and/or the opening of the economy to outside world (a.k.a. Globalisation) and/or economic liberalisation and its impact on growth and social development is not always positive; rather ambiguous!¹¹

There are some important research documents that establish the relationship between trade policy and economic growth and poverty reduction: Dollar (1992), Ben-David (1993), Sachs and Warner (1995), Edwards (1998), Frankel and Romar (1999), Dollar (2001) and Dollar and Kraay (2001). These studies show that cross-country regression primarily suggests that countries that opened up and took robust trade policies are the ones growing faster, in terms of economic growth. On the contrary, there is still plenty of scepticism about the above relationship of opening up and economic growth. Stiglitz (1999) raised concern about the success of reform policies, as he notes that ‘the limited success in so many of the countries

¹⁰ See Nagar and Basu (2002) for an alternative technique to measure of HDI.

¹¹ See for more discussion on economic reforms, trade policies, growth and inequality, Dollar & Kraay (2001), Marti (2001), Rodriguez & Rodrik (2000), Aghion & Williamson (2000), Baldwin & Martin (1999), and Edwards (1998).

means that their remain many opportunities for applying the lessons of such studies'.¹² Rodriguez and Rodrik (2000) raised analytical questions about some of the above studies, and concluded that ' little evidence that open trade policies—in the sense of lower tariff and non-tariff barriers to trade—are significantly associated with economic growth'. Moreover, another concern is now about the *quality of growth*, rather than *quantity per se*. The primary focus is to present cases that with the initiation of economic reform process, countries grow faster and thus giving impetus for poverty reduction.

We presume that the legitimacy of the reform policies, and/or the process of globalisation would not be able to induce economic growth and social development unless the policies include (what may be termed as) a **3-D approach** to development to widen overwhelming consensus upon reducing "***Discrimination, Distress and Destitution***" at the global level and/or within countries. Thus, we trace that with higher income growth rate countries achieve better standard of living and consequently reduce poverty incidence.

2.3. Conceptualising Economic Well-being

In the present study we develop a measure to estimate the *well-being index* (see Section 3 and Technical notes TN1 for a detailed analysis). Here, we discuss all these indicators and rationale for including them in constructing Well-being index.

The proposed ***economic well-being index (EWBI)*** is constructed on the basis of five different socio-economic dimensions, namely, *health, knowledge, income, technological progress, and infrastructure* (see Table 2.1 below). These dimensions are supposed to evaluate the society's overall welfare and standard of living. There are two indicators to measure the *health status* of the people in the region: *infant mortality* and *life expectancy* at birth. We have included two indicators for *knowledge*: *adult literacy* and *combined enrollment* ratio. For income, we take per capita real income (real) to measure the purchasing capacity of the people, and this indicator, as described above, has been recognised as the single most important yardstick for welfare, until economists start constructing the composite measure of quality of life. *Intensity of cropping*, and *fertiliser consumption* are considered as a measure of technological progress. In India and China, agriculture has been the critical force for sustaining development, as this sector provides food and other essentials for the industrial sector, which help induce overall development. Moreover, these factors also help increase agricultural productivity, which generally lead to faster growth through chain effects. Finally

¹² 'Whither Reform? Ten Years of the Transition (1999), Keynote address at the ABCDE, World Bank, Washington, D.C.

we have *infrastructural* dimension, and it is believed to be an essential element for growth and development. In our analysis, we have eight different indicators to capture this dimension. They include *population per hospital bed, per capita electricity consumption, post offices, bank branches, telephone lines, road and railway route, and village electrification*. These indicators focus on availability of health, financial, transport, communication and rural infrastructure respectively. The better infrastructure facilities help allocate resources quickly to every place, and reduce cost of production, hence induce economic growth & development process.¹³ The higher value of the index indicates better level of well-being for the region in this analysis. Thus, our measure of well-being is a comprehensive composite measurement to capture the quality of life of people.

Table 2.1: Indicators of Economic Well-being Index (EWBI)

HEALTH	KNOWLEDGE	INCOME	TECHNOLOGICAL PROGRESS	INFRASTRUCTURE
1. Infant mortality rate (per 1000 live births)	3. Adult literacy rate (%)	5. Per capita real Income (Rs/Yuan)	6. Intensity of cropping (%; irrigated area/total sown area)	8. Population per hospital bed (no)
2. Life expectancy at birth (years)	4. Combined gross enrolment ratio (primary to high school)		7. Fertiliser consumption (%; chemical fertiliser/total grain sown area)	9. Per capita electricity consumption (kwh)
				10. Post offices (per 100000 population)
				11. Bank branches ('do')
				12. Telephone lines ('do')
				13. Road length (per 100 sq.km)
				14. Railways route (per 100 sq.km)
				15. Village electrification (%)

3. Estimation Methodology and Data Sources

In this section we discuss the empirical framework and the data sources of this paper. In the first sub-section, we describe the model to obtain the Economic Well-Being Index (EWBI), and then we present the data sources for both countries.

¹³ See Nagar & Basu (2002) for an empirical link between quality of infrastructure and income from a study based on the Indian states.

3.1. Empirical Framework

In this section we discuss in detail the statistical technique that we have employed to compute the economic well-being index.

We describe here the statistical technique of factor analysis, to compute the *Economic Well-being Index (EWBI)*. The Factor Analysis (FA) technique is used to do the following: to reduce the number of influencing indicators, and to detect structure in the relationships among indicators, that is to classify variables according to their effect on the variables of interest.¹⁴

The FA technique reduces the set of observed indicators to a smaller number of unobserved factors, which have a common causation influence. The underlying assumptions of factor analysis are that there exist a number of unobserved 'factors' that account for the correlation among the observed indicators, and because of this relation, the unobserved factors can be inferred from the observed indicators

The structure of the model to obtain our EWBI is expressed as following:

$$X = \Lambda f + e$$

where X = p -dimensional vector of observed indicators, $X' = (x_1, x_2, \dots, x_p)$,

f = q -dimensional vector of unobserved indicators called common factors,

$$f' = (f_1, f_2, \dots, f_q),$$

e = p -dimensional vector of unobservable indicators called unique factors,

$e' = (e_1, e_2, \dots, e_p)$ and

$$\Lambda = \begin{pmatrix} \lambda_{11} & \lambda_{12} & \dots & \lambda_{1q} \\ \lambda_{21} & \lambda_{22} & \dots & \lambda_{2q} \\ \vdots & \vdots & \ddots & \vdots \\ \lambda_{p1} & \lambda_{p2} & \dots & \lambda_{pq} \end{pmatrix}$$

where $\Lambda = p \times q$ matrix of unknown constants called factor loadings.

There are p unique factors and it is generally assumed that the unique part of each indicator is uncorrelated with each other or with their common part. The total number of parameters in need of estimation is the number of factor loadings, namely pq . The relationship within a set of p observed indicators reflects the correlation of each observed

¹⁴ See Anderson (1984) for more on the theoretical discussion.

indicators with q mutually uncorrelated underlying factors, with the above assumption that number of factors to be extracted should be less than the number of indicators, $q < p$.

Thus, the base model can be rewritten as,

$$X_i = \sum_{j=1}^q l_{ij} f_j + e_i \text{ -----2}$$

This set of equations in (2) is called a factor pattern. The $p \times q$ matrix of factor loadings with factor designations as columns is referred to as the pattern matrix. The correlation between the observed indicators and the common factors is called a factor structure for a complete solution.

However in practice, the original observed indicators are standardised (by subtracting from means and dividing by their variance respectively), the basic FA model is the correlation matrix of R.

Now writing (4) in a linear FA model yields:

$$\left. \begin{aligned} X_1 &= l_{11}f_1 + l_{12}f_2 + \dots + l_{1q}f_q + e_1 \\ X_2 &= l_{21}f_1 + l_{22}f_2 + \dots + l_{2q}f_q + e_2 \\ &\vdots \\ X_p &= l_{p1}f_1 + l_{p2}f_2 + \dots + l_{pq}f_q + e_p \end{aligned} \right\} \text{-----3}$$

The total combination of factor f_j to the total variance of the entire set of variables is given by the eigenvalue of the factor f_j , obtained as

$$V_j = \sum_{i=1}^p l_{ij}^2 = l_j' l_j \text{ -----4}$$

where l_j denotes j^{th} column of Λ .

Thus (4) implies the squared factor loadings, $\sum_{i=1}^p l_{ij}$ for $j= 1, 2, \dots, q$.

The objective of the model framework is to determine the minimum of common factors that would satisfactory produce the correlations among the observed indicators. We discuss only the Principal Factor method to find out initial solutions here. This method extracts factors such that each factor accounts for the maximum possible amount of the variance contained in the set of indicators being factored. Here, the method generates the coefficients $l_{11}, l_{21}, \dots, l_{p1}$ for the factor f_1 in such a manner that the contribution of f_1 to the total communality V is maximised, subject to $\frac{1}{2} p(p-1)$ correlations and the P specified

communalities. This solution is equivalent to finding the eigenvalues and eigenvectors of the reduced correlation matrix R.

Now FA analysis involves, finding simpler and more easily interpretable factors through rotation, while keeping the number of factors and communalities of each indicator fixed. This rotation is done to see how the observed indicators are clustered into sub-groups, one sub-group lying close to one rotated factor and the other sub-groups lying close to the other rotated factor and so on. There are two types of rotation method: a) orthogonal rotation, and b) oblique rotation, where no such restrictions are involved.

However in orthogonal rotation, we focus only on the most used algorithm, i.e. the Varimax. This method is used to rotate principal component rotation that seeks to rotate the factors so that the variation of the squared factor loadings for a given factor is made large. Moreover, these loadings are normalised (Kaiser Normalisation), as obtained by first dividing each variable loadings by the square root of its communality. By such a scaling all indicators are given equal weight in the rotation.

Then we estimate factor scores in the FA model as below: for a given factor f_j the i^{th} extracted factor score, denoted by F_{ij} , is given by

$$\hat{F}_{ij} = b_1 X_{i1} + \dots + b_p X_{ip} \text{ -----5}$$

where b_1, b_2, \dots, b_p are referred to as regression coefficients and $X_{i1}, X_{i2}, \dots, X_{ip}$ are p observed indicators, for the i^{th} observations.

Finally, we define the Economic Well-being Index (EWBI) as a weighed average of the factor scores, where the weights are the eigenvalues of the correlation matrix R.

$$EWBI^s = \frac{\sum F_j l_j}{\sum l_j}, \text{ where } s= 1, 2, \dots, S \text{ (sates/provinces) } \dots \dots \dots 6$$

Then we normalise well-being for each state/provinces in the following form, i.e.,

$$X_k = \frac{X_k - \text{minimum } X_k}{\text{maximum } X_k - \text{minimum } X_k} \dots \dots \dots 7$$

where maximum X_k and minimum X_k are the values of $EWBI_k$ for $k=1,2, \dots, n$ (sates/provinces)

3.2. Data sources

The per capita GDP growth rates, Investment rate and other trade related variables for India and China are obtained from sources, namely, the World Development Indicators (WB), Asian Development Outlook (ADB), Economic Surveys of India (various years), China Statistical Yearbook (various years) respectively. The sectoral indicators (agriculture etc), Social Indicators (life expectancy etc), Poverty and Gini ratio, are also obtained from National sources, WB, ADB, ILO, UNDP/HDR etc.

In the second part, we have the regional/sub-national database for India (16 major States of India) and China (28 provinces of China) for the period of last two decades. The Indian states level data is from 1980 to 2001, and the Chinese provincial level data are related to 1978 to 2001.

We sub-divided the entire time of our analysis into four different time points, for both India and China. The criteria for choosing the different time points are based on the policy changes over the period. With the introduction of distinct policy, the countries have experienced differences in growth and development record. In the present analysis, we divided last two decades into four different periods, as for India, 1980-1985, 1986-1991, 1992-96, and 1998-2001; while for China, 1978-85, 1986-91, 1992-96, and 1997-2001 respectively. We compute the growth rates of 28 Chinese provinces from 1978 to 2001, based on the real per capita GDP (1978=100) in Yuan.¹⁵

The computation of provincial well-being index for China is computed on the basis of thirteen indicators capturing different dimension of economic, social and physical infrastructure, technological characteristics of the economies (as described above)(The details of the measurement and data sources are provided in the Appendix Table T1).¹⁶

In terms of the Indian database, we have per capita GDP of all the 16 states from 1980-81 to 2000-01(1980-81 base prices). We also compute the growth rates for all the states over the period. The State economic well-being index is computed with 15 indicators, as we

¹⁵ The GDP per capita growth rates is calculated by the regression equation, of the form $\ln X_t = a + bt$, which is equivalent to the logarithmic transformation of the compound growth equation, $X_t = X_0 (1 + r)^t = X_0 (1 + r)^t$. In this equation X is the variable, t is time, and $a = \ln X_0$ and $b = \ln (1 + r)$ are parameters to be estimated. If b^* is the least-squares estimate of b , the average annual growth rate, r , is obtained as $[\exp(b^*) - 1]$ and is multiplied by 100 for expression as a percentage.

¹⁶ Among the 31 provinces in China, Hainan and Tibet were excluded since the data are not available consistently for all the variables and years. Data for Chongqing, which became a municipality in 1997, are included in Sichuan.

have added two more indicators bank branches and villages electrified (see Appendix Table T2 for details about the sources of all the indicators described above).¹⁷

4. Comparing and Contrasting Economic Strategies in India and China: An Overview

In this section, we briefly discuss the economic reform process and strategies of both countries to embark upon the path to integrate with globalised economies. Initially both countries started with their planning models in *Soviet style* to eradicate mass poverty and inequality, rural-urban gaps, gender inequality by giving the state a predominant role in accelerating the process of economic growth.

4.1. Background Story of Economic Reform Process

When India got her Independence in 1947, the country was pretty much handicapped with mass poverty, a stagnating agriculture sector, and had industry with age-old machines faced with very low level of productivity growth. The Prime Minister of India at that time Nehru, initiated the planning model to emphasise the role of heavy industry for development, which is known as Nehru-Mahalanobis model aimed at accelerating growth to increase India's overall development potential, and thus help reduce mass poverty.¹⁸

In 1949, under the great leadership of Mao, the Communist party rose to power in China, and initiated the planning process to bring the economy and society toward the path of progress and development. To bring countries out of low-level equilibrium trap, the leadership believed that the State should take up the *commanding heights of the economy*.

At the beginning the growth-accelerating strategy was placed in the forefront to attack poverty, and to increase the investment rates further in India. India took more *'inward-looking'* economic strategy, the so-called 'Import Substitution Industrialisation' (ISI) strategy, to protect and develop the domestic industries, and adopted anti-export biased policies. In agricultural sector, the policies emphasised on mechanisation and R&D. This is often known as the *Green Revolution* in Indian agriculture.¹⁹

¹⁷Among 28 states and 7 Union territories, the 16 major states are used here for consistent data availability for all the years and variables in our analysis. These 16 states cover more than 94 % of the total India's population in 2001 Census of India.

¹⁸ According to Bhagwati (1998), this growth rate was an 'instrumental variable, a policy outcome that would in turn reduce poverty'.

¹⁹ Green revolution started in India in 1966, mostly in the states, like Punjab, Haryana and West Bengal, and is consisting of three basic elements: continued expansion of farming areas; double-cropping existing farmland; using seeds with improved genetics- HYV of which, K68 variety for wheat is most important.

On the other hand, in the period from 1949 to pre-1978, the Chinese economy is characterised by different policy changes. Initially, they gradually replaced the capitalist economic system by a communist one, with the collectivisation of farming (agriculture) and increasing the state ownership of heavy industry. The basic philosophy of the planning model was to bring all the private commercial activity and production structure under the state ownership.

During the *Great Leap Forward (1958-1961) (GLF)*, the key element of the planning strategy was to exploit the rural areas in order to support the growth of urban/city based industrialisation. The heavy mobilisation of labour force for the industrial process led to a fall in crop production and inevitably resulted in a massive food shortage that caused millions to starve to death.²⁰ However, this disaster had moved the Chinese leadership to accord the highest importance to agriculture-led economic development and reforming farming related issues.

After *Great Proletarian Cultural Revolution (1966-76)* and the death of Mao in 1976; the CCP was taken over by the dynamic young leader, Deng Xiaoping.²¹ With Deng's charismatic leadership, China embarked upon reform towards foster growth and economic modernisation.²²

4.2. Economic Reform Strategies

In 1991, Indian economic reform policies were initiated under a severe balance of payments problem.²³ This crisis finally helped India to change her economic system (from closed door/inward looking to outward looking/open door policy), which India has pursued over the last four decades.²⁴

²⁰ According to Lieberthal (1993) estimates 20 million deaths between 1959 and 1961; Riskin (1987) estimates 15 million and Becker (1996) puts the figure to at least to 30 million.

²¹ The story of the Gang of Four is about a group of four hard-core communists who dreamed of a China with the most orthodox form of communism on Earth. In the mid-1960s they pushed for total destruction of traditional Chinese culture to be replaced by textbook communist ideology and culture. Their powerful positions enabled them to win support. They became the leading forces in Mao's Cultural Revolution. After Mao's death in 1976, the CCP rejected the Gang of Four and the Cultural Revolution.

²² Deng's famous quote about the Chinese economic reform is, "It doesn't matter if it's a black cat or a white cat, as long as it catches mice".

²³ The annual inflation rate reached at nearly 14%, gross fiscal deficit of the central government reached to 8% (of GDP), central government debt reached at 51% (of GDP), current account deficit peaked at nearly 3% (of GDP), external debt went up to more than 26% (of GDP) in 1990. World Development Indicator 2001, World Bank. See Agarwal (1997) for further discussions.

²⁴ There was a tremendous pressure on India's foreign exchange reserve, as it stood at 3105 m. US\$ in 1989, and went to 1205 m. US\$ in 1990 (IMF, IFS 2002), could only be able to sustain two weeks of imports coverage.

In the wake of such an event, the Rao-Singh government took initiatives of reforming the Indian economy, with support from international organisations, such as IMF-WB in mid-1991 to open up economy to the world.

The key element of India's reform strategy initially includes *structural measures*, consisting of industrial policy reform, trade and exchange rate reform (i.e., external sector), and reform in the financial sector, public sector reform and measures to streamline tax reforms among many other series of reform measures.²⁵ These also include de-controlling of the private sector investment, trade liberalisation and opening up of the door to foreign investment (both for FDI and FII), vis-à-vis the financial sectors, etc. Moreover, some of the important public sector industries were opened up (e.g., iron and steel, heavy plant machinery, telecommunications, air transport services, etc) to the private sector.²⁶ Series of measures were directed to *de-regulation of imports* and in general opening up of the trade and investment regime for outside competition, which is by the way a step forward towards India's attempt to integrate with the world economy, easing the *quantitative restrictions (QRs)* that were used as an instrument to restrict the imports of not only finished consumer goods, but also input of raw material components, and capital goods. In the first phase of the reform, import licensing was dismantled with respect to industrial raw materials, intermediate components and capital goods. However, keeping with the WTO commitment, the Indian government promised that QRs on all imports would be phased out within a period of six years starting from 1998.²⁷

In line with international standards (WTO regulations), India had to *reduce the average rate of tariff*, as her import duties were the highest among countries with more than 200% on certain items. *Exchange rate management* is another area where reform has been done very cautiously and with care. There was a strong feeling among the reformers to tap the foreign investment (both short-term and long-term capital) in the economy, as the public sector investment has no longer been feasible and sustainable given the huge losses and inefficiency in resource mobilisation. The law allowed the FDI of up to 51 % foreign equity in

²⁵ The Committee of Tax Reform was set up in 1992; it proposed that the share of customs duties in total taxes to be reduced and the share of direct taxes to be raised. More revenue needed to be mobilised via excise duties by transforming them into value added taxes. Maximum rates of personal and corporate income taxes were reduced.

²⁶ The production of certain items in the small-scale sector has been reserved to keep the interest of the small-scale units.

²⁷ The central government in New Delhi under the 'United Front', coalition government introduced this phasing out of QRs in 1998. After that the BJP government took over power in the central, it endorsed phasing out of QRs, and as a first step they removed QRs from 350 items in April 1998., which still leaves 2200 items subject to QRs. (Ahluwalia, 1999).

a defined list of 48 industries and up to 74% for 9 high priority industries.²⁸ The *decontrol of price regime* is also a crucial component of the overall structural adjustment policy, along with the setting up of the *Disinvestment Commission in 1996*, to privatise the chronically loss making public sector units, and to sale their shares in the market.²⁹

The Chinese reform policies were taken up in the Third Plenum of the 13th CCP Central Committee meeting in December 1978 in order to integrate China into the world economy. The Chinese leadership touched at the more fundamental institutional arrangements of the age-old traditional Soviet type planning approach of the economic system. However, the Chinese leadership preferred '*gradualism*' rather than going for all out 'open door' policy from the very beginning. They followed this approach in order to avoid any major disruptions and helped China to 'transform from a predominantly central planning system to one in which market mechanisms play an important role' (Bell et al, 1993).

Initially, Chinese reform policies (1978 to 1985) placed emphasis on improving the incentive mechanism to stimulate farmers', managers' and workers' in order to increase the overall efficiency. The reform process was primarily aimed at rural economy, especially the *agricultural sector*. The key element of the agricultural reform process was the boom of *township and village enterprises (TVEs)*, which was an offshoot of the relaxation of restrictions on non-agricultural activities in rural China. The TVEs played an important role in absorbing surplus labour in the countryside and in earning foreign exchange.³⁰

The Industrial/Enterprise reform is a crucial element of the Chinese market oriented path of economic process. As TVEs have been originated from the agricultural reform process, likewise, *State-Owned Enterprises (SOEs)* were the key channel through which the industrial reform was initiated. The initiative for *labour market reform*, the Chinese leadership thought, would be most difficult to implement. SOEs jobs are considered to be the 'iron rice bowl' (i.e., job for life). The labour contract system was finally introduced in SOEs in 1986 for all newly recruited workers.

²⁸ In 1993, Foreign Institutional Investors (FIIs) were, for the first time, allowed to invest in Indian equity once they fulfil certain minimum standards, and further the policies were simplified to enable them to trade in debt instruments through secondary market purchases in the stock market. Another channel for portfolio investment was provided by allowing Indian companies to issue fresh equity abroad through the new mechanism called, *Global Depository Receipts (GDRs)*.

²⁹ The Commission set up by the United Front government to restructure public sector undertakings (PSU) either by privatising them or off-loading shares in favour of workers. The objective of the plan is to divert the revenues generated from such disinvestment to be utilised for allocations for education and health and for creating a fund to strengthen public sector enterprises in future.

³⁰ TVEs are not privately owned, as collectives largely owned them. They were given free hand in deciding about the wages and open market sell. They also received tax concessions by the government and preferential access to credit facilities (see for more on this Bell et al 1993)

Since early 1990s, the main purpose of this reform has been to increase *efficient resource allocation*, including material distribution, foreign exchange, and financial markets, with well-specified attention to reforming the banking sector. Reform in the *Foreign Trade and Investment* is of course the most far reaching. As with the other areas of reform, the Chinese leadership here also took the ‘gradualism’ approach to opening up its economy to trade with the rest of the world and laid down favourable policies on *Foreign Direct Investment (FDI)*, which is regarded as the crucial channel of trade openness and integration. The main objective of this sectors reform was to encourage exports in order to create a substantial foreign exchange reserve, and to support the import of advanced technology and equipment. They also provided greater power to regional corporations, and to break up the monopoly power of the state foreign trade corporations. The setting up of the *Special Economic Zones (SEZs)* was envisaged to attract the foreign investor’s vis-à-vis to enhance export possibilities, thus proving the way for economic development. Perhaps, the Chinese export growth could be attributed to its close trade and investment connection with Hong Kong, and with Taiwan.

To provide better incentives, foreign firms located in the SEZs do enjoy large amount of tax concessions and other favours.³¹ Since 1992, the Chinese central leadership announced that the goal of the reform was to establish “socialist” market economy, and the slogan ‘be bolder and faster’ was also proposed as the guideline for creating reform policies.³² The reform in exchange rate policy is also an important instrument for Chinese economic growth. The unified dual exchange rate policy boosted the international competitiveness of the Chinese enterprises in the period of economic reforms.

4.3. Do they follow a Contrasting Approach to Economic Reform?

How much the reform policies differ in the two countries? A quick look at the policies and strategies in both countries will indicate that there are some crucial differences in the sectoral reform approaches. The Chinese agricultural reform was at the heart of the process, whereas India’s initiative in agriculture was not encouraging. The system of household responsibility and other incentives were pretty much given high weight in China, with added importance on the land-tenure system. India, although initiated the reforming land-tenure and land-reform way back in 1950s, failed to succeed (except for Communist Party ruling states of West Bengal and Kerala), in its land re-distribution efforts.

³¹ Massive restructuring in banking sector, after the 11th CCP Central Committee meeting.

³² Deng Xiaoping stated this while he was visiting southern China.

On the other hand the Industrial sector was the heart of India's reform process. Both countries sought to lay down proper balance of heavy and big industries, vis-à-vis the small-scale industries, which was crucial for a successful reform. Perhaps, the Chinese approach is noteworthy and successful as they restructured the SOEs and helped increase efficiency of TVEs to provide a channel of feedback mechanism to each other. In India, the government failed to keep the balance between the small and large-scale industries, because of several political and bureaucratic vested interests. Moreover, on labour market policies, the Chinese reform measures are probably bolder than the Indian approach. The entry and exit policy differs in both countries. While in China there has been large-scale layoff in SOEs, the Indian labour laws and unions/lobbies are too strong to allow government to pass a full-fledged bill on this policy. Thus India has yet to rationalize 'flexibility' in labour markets.

Another key issue is that of opening up the market for *foreign investors* (including short term investment) and investment, by lowering import tariff rates to promote a level playing field for both domestic and foreign entrepreneurs. The aim is to attract more Foreign Direct Investment (FDI) and other long-term investment. To achieve this objective both China and India had set up *Special Economic Zones (SEZs)* and *Export Processing Zones (EPZs)* respectively. The Chinese SEZs have been more successful than that of India's EPZs. The close proximity of overseas Chinese providing investment in Hong-Kong, Macao and Taiwan is more crucial than the magnitude of investment done by the *Non-Resident Indian's (NRIs)* in the Indian context (see Appendix Table T3 for different strategies of reforms in India and China).

With such differences in the economic reform policies, we discuss the link between economic reforms and performance at the national level during the post-reform era. In the following section, we intend to show how the economic reform policies have actually helped India and China to overcome the low level of growth and employment, which would ultimately lead them towards high level of well-being.

5. Economic Reforms and Performances: A Quick Glance

In this section, we discuss how at the macro-level, economic performances have improved in India and China since their initiation of reform policies. Both countries are now probably the two most classic cases in all the recent studies to indicate that economic opening up has actually benefited countries by increasing per capita income level and growth and by helping reduce poverty level. The current global decline in the poverty rate is described

mostly due to the decline in the poverty rates of these two countries, as World Bank estimates based on consumption surveys shows that the proportion of people living on less than \$1 a day declined in China from 33 % in 1990 to 16 % in 2000, and in India from 42 % in 1993/94 to 35% in 2001 (World Bank 2003).³³

We present at the national level performance of both economies in this section (in following section, we discuss at the sub-national level). We show in the Table 5.1 below some of the key indicators of both countries on the eve of adopting their economic reform policies respectively. The per capita income was higher in India on the eve of the reform, but the GDP growth rate was considerably lower for India. In terms of the social indicators, we observe

Table 5.1: Initial conditions: A Profile on the Eve of Economic Reforms

		India-1991	China-1978
I	Income indicators		
	GDP growth (annual %)	0,42	7,29 ¹
	GDP per capita (constant 1995 US\$)	318,00	151,33
II	Social Indicators		
	Illiteracy rate, adult total (% of people ages 15 and above)	49,88	36,01
	Mortality rate, infant (per 1,000 live births)	80,00	39,00
	Life expectancy at birth, total (years) ²	59,128	66,84
	Human Development Index ³	0,434	0,554
III	Economic Indicators		
	a) Savings-Investment		
	Gross fixed capital formation (% of GDP)	23,00	29,63
	Gross domestic savings (% of GDP)	22,48	37,70
	b) Sectors		
	Agriculture, value added (% of GDP)	31,71	28,10
	Industry, value added (% of GDP)	26,29	48,16
	Manufacturing, value added (% of GDP)	16,07	40,71
	Services, etc., value added (% of GDP)	42,00	23,74
	c) External sector		
	Exports of goods and services (% of GDP)	8,74	4,60
	Imports of goods and services (% of GDP)	9,34	4,93
	Manufactures exports (% of merchandise exports)	72,04	Not available
	Foreign direct investment, net inflows (% of GDP)	0,03	Not available
	Trade (% of GDP)	18,08	9,53
	d) Urbanisation		
	Urban population (% of total)	22,38	17,90

Notes: ¹1979 for China, ²1990 for India, and 1980 for China; ³1980;

Source: World Bank, World Development Indicators 2002.

that Chinese condition was better than that of India's, with higher level of human development as well. We also show other economic indicators, like savings rate, which was

³³The UNDP HDR's(2003) findings is that the first of these global targets (Millennium Development Goal 8).. reducing by half the proportion of people living on less than US\$1 a day.. is likely to be reached, due in large part to sustained economic growth in China and India.

much higher than in India, that has actually helped China to make more investment; leading to a higher growth rate in the post-reform period. In terms of sectoral distribution, China had started with a favourable contribution from the industrial sectors, as the bulk of that proportion was from manufacturing industry. While in India, the industrial development was not that favourable for economic growth, and there has been stagnation for a long period in the 1980s and early 1990s. The service sector was contributing more in India during their respective period. In terms of external sector performance, the Chinese record was below that of India, as the export and overall trade-GDP ratio was higher in India. The urbanisation was also higher in India as compared to China on the eve of economic reform of the respective countries.

Thus, we observe that the Chinese economy was already having more contribution from industry, vis-à-vis manufacturing sector, and the savings rate was much higher as compared to India, partly from the fact that Chinese social sector performance superseded the Indian performance.

India and China are both resource-rich countries, with most of the population being agrarian based. So, when they thought about setting up the modern domestic industrial sector to produce industrial goods, and intermediate capital goods, they wanted to protect their infant industries from the competition of foreign industries. Then the state initially imposed a high level of tariffs and other non-tariff barriers to have an anti-export bias economic strategy. Import substituting industrialisation or closed door economic policy was encouraged to raise the role of capital intensive production, with less importance on labour-intensive industries. This had actually hurt their growth process, and failed to reduce the poverty incidence in the pre-reform era.

The basic argument was then to open up the economy to the rest of the world and reap the benefit of trade and information exchange. The policies in both countries were re-directed to boost the industry and attract foreign investment. With the trade liberalisation, the countries reduced high tariff level on imported goods and eliminate the quota restrictions. This has immediately helped them to attract huge foreign resources and investment in the domestic economy. The policies were designed to boost to export and efficiency of resource allocation in line with comparative argument logic of trade theory.

In our next Table 5.2, we show how in the post-reform period in India and China, the economic openness indicators, the trade-GDP ratio, and FDI-GDP inflow has evolved. The Chinese economic policies has tremendously helped the economy to increase trade and

attracted huge amount of foreign investment, along with a steady fall in tariff barriers as well³⁴.

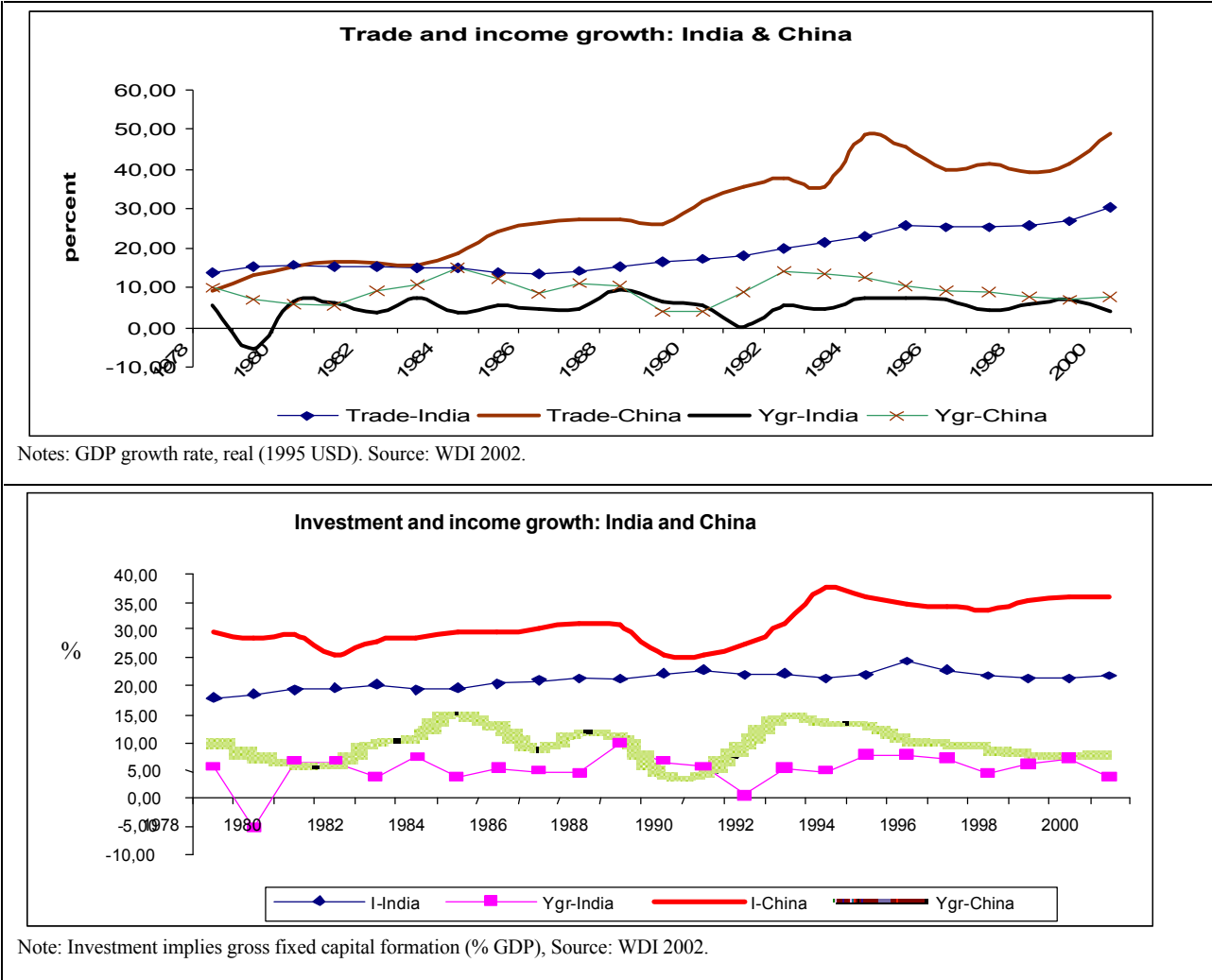
Table 5.2: Indicators of Economic Openness

Period average	India			China		
	Trade (% GDP)	FDI (% GDP)	MD (% M)	Trade (% GDP)	FDI (% GDP)	MD (% M)
1960-70	8,30	0,07				
1971-78	11,17	0,04	26,64			
1979-90	15,32	0,04	39,40	25,32	0,60	7,99
1991-2000	24,26	0,44	26,43	39,09	4,35	4,18

Notes: Foreign direct investment, net inflows (% of GDP), MD (% M)-Import duties (% of imports).
Sources: World Development Indicators 2002, World Bank.

In Figure 5.1 below, we show the evolution of trade the expansion, and investment rate with the income growth rate for both India and China over the last two decades (see

Figure 5.1: Trade (% GDP), Investment and GDP Growth Rate



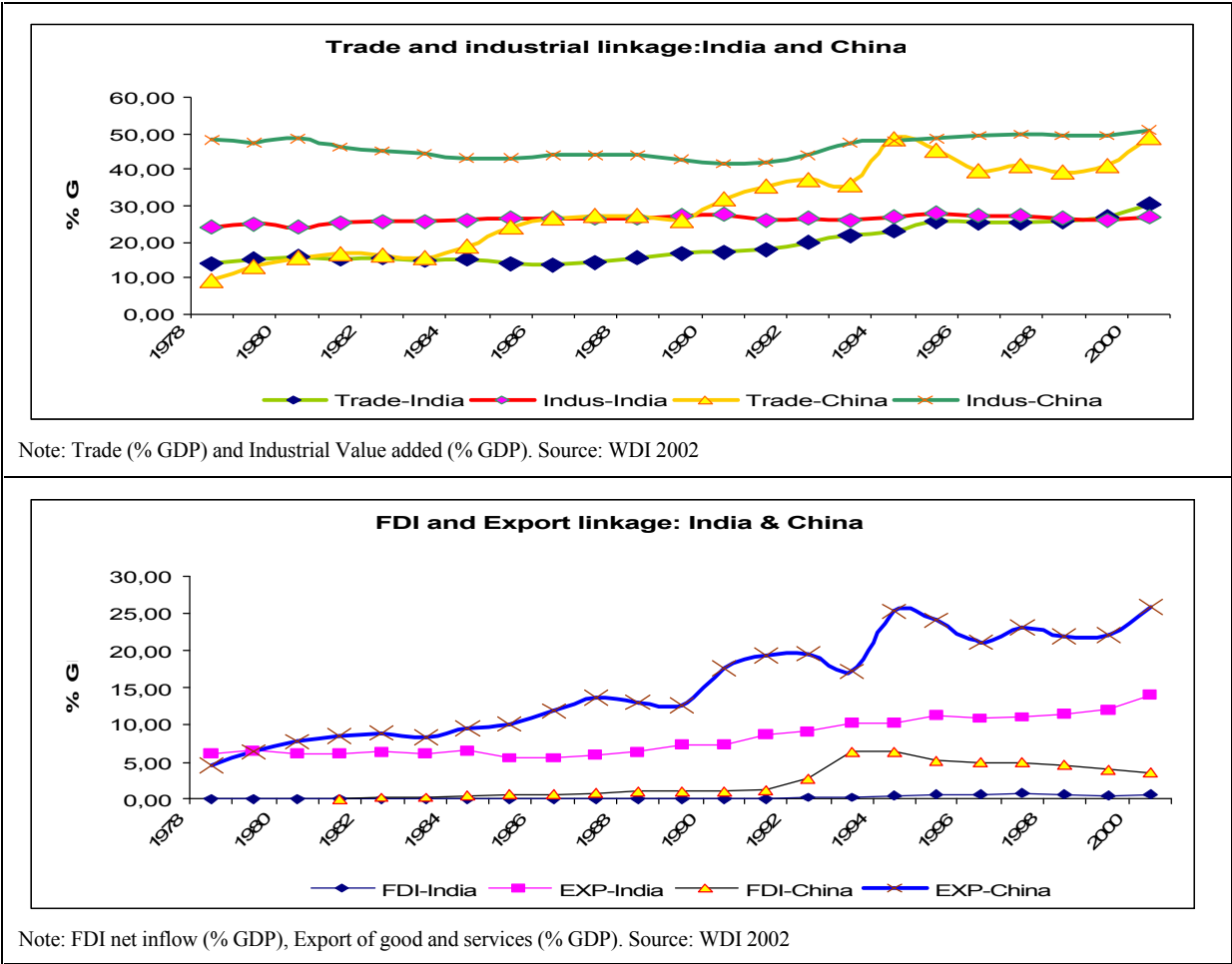
³⁴ The FDI Confidence Index (2002) puts China as the number 1 destination of FDI, whereas India stand at 15 among the 25 countries chosen based on surveys of leading entrepreneurs around the world.

Appendix Table T4 for growth rate and Table T5 for investment rate). It is evident from the figures below that Chinese trade expansion has increased at a great speed and also the rate of investment which has basically helped the country to sustain her growth rate at such a high level over the decade.

Trade expansion and industrial development has been interesting in both countries, as well as the FDI inflow with the export growth inter-linkage. In the next figure, Figure 5.2, we show these two linkages for India and China since 1978. The figure clearly shows that with the trade expansion, industrial development has gone up in China. Whereas in India, even though there has been a rise in trade, the industrial output has not really picked up-a clear sign of stagnation.

Similarly with the increase in FDI inflow in China, the export sector has grown up rapidly in the post-reform period, while the Indian FDI inflow has been very limited and the

Figure 5.2: Trade, Industry, FDI and Export Linkage

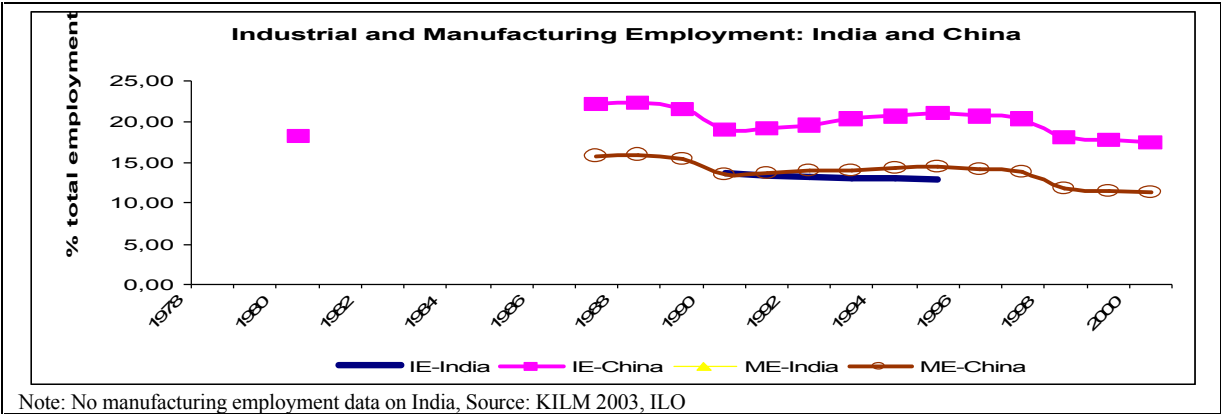


export rise has been modest over the same period. The other crucial effect of economic reform can be looked at through the manufacturing sector, as through industrial development, and

increase in FDI, the manufacturing sector plays a crucial contribution to overall economic growth and employment generation in labour surplus countries like India and China. Industrial expansion helps export diversification, leading to a rise in manufacturing output, and which in turn raise more employment in the sector (see Appendix Table T6 for transformation of sectoral contribution).

In Figure 5.3, we show the trend in industrial and manufacturing employment for both India and China. We do not have a very good database on the employment scenario since

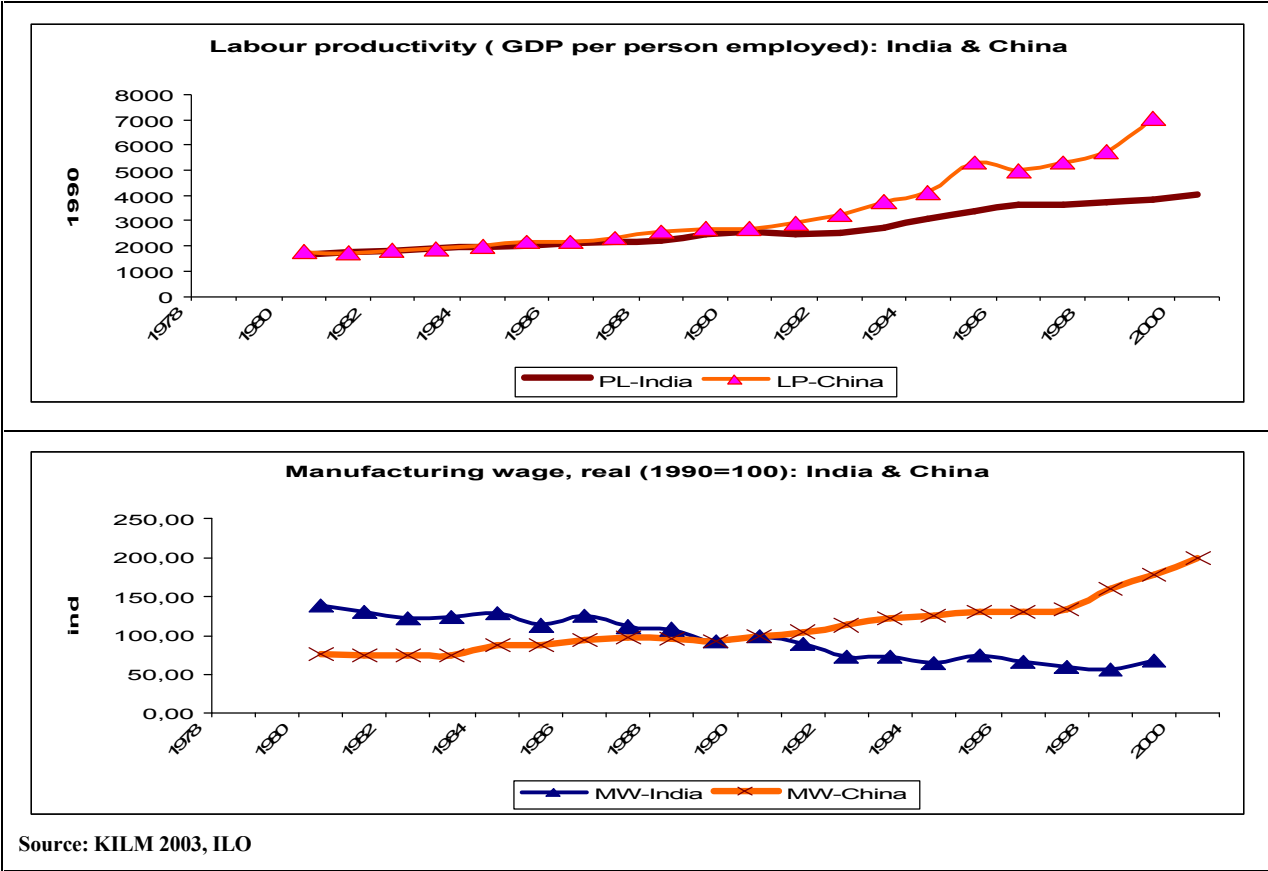
Figure 5.3: Employment (industrial and manufacturing) Trend in India and China



1978, although the trend shows that Chinese industrial and manufacturing sector employment is higher than India. Perhaps, there has been a growing concern now about the fall in the employment rate since the accelerating rate of reform in China, especially since the 1990s.

Another significant aspect of the economic reform is the technical change in the economy leading to a rise in the productivity rate, and which in turn increases the real wage rate of the manufacturing sector (Figure 5.4). Higher wages help the economy to reduce the poverty rate and induce a higher rate of growth. The experience from India and China shows that Chinese labour productivity, measured by the GDP per person employed has been increasing over time, so as the wage rate. This has actually helped China to reduce poverty rate immensely as compared to India during the reform period, as well as other social indicators progress much better in China. One of the plausible reasons is that of the supply side factors like public spending on human capital, especially provisioning of basic health and education is a key for sustaining a higher level of growth and poverty reduction. The figure (average of 1990s) from the World Bank shows that total public spending (% GDP) in China is 8.77 and is 15.88 in India. The health and education expenditure (% GDP) in China is 4.05 and 2.20; and is 5.01 and 3.26 for India respectively. Also per capita primary student

Figure 5.4: Productivity and wage linkage



expenditure (% of per capita GDP) is higher in India (8.44) to China (5.93). However, these statistics are not really confirming the economic performance of India as compared to China. (see Appendix Table T7 for economic transformation).

This has shown positive results in terms of better outcome in socio-economic and gender development index in China. The HDI and GDI value of China is much higher, so is the low rate of HPI, which stands 14.5 for China, and 33.1 for India in 2000

Thus, macro-level evidence shows that there has been a strong correspondence between economic growth and well-being and/or overall level of development of both countries.

6. Empirical Results: India and China

This section provides the core of our overall analysis, as we attempt to explore the how at the sub-national both countries are performing and to what extent higher growth rate is related to well-being level.

6.1. Economic Performance at the Sub-national Level

The issue of regional disparity has been a major concern for the policy makers in both India and China.³⁵ Of course there are many factors that are responsible for differential level of growth among countries, but within a country differential level of economic development has been a major issue of empirical study in the countries like India and China. Recent researches have indicated that geography, policy orientation, cultural differences, sectoral composition and rate of urbanisation are some of the key factors that could explain the level of economic differences across regions within a country.

6.1.1. Growth Performance

Initially, we look separately at the economic growth performance of all the regions (states/provinces) in India and China. In Table 6.1, below, we present the growth rate of the four different periods for all the 16 Indian states. In the first period (1980-1985), the pre-reform, Gujarat and Rajasthan grew with more than 4 percentage point per annum, whereas Bihar and Karnataka grew at an average of more than 3 percent. On contrary the states like Himachal Pradesh and Kerala's growth rates were negative. Also, Madhya Pradesh and Orissa

Table 6.1: Per Capita GDP Growth Rates: Indian States

	GR1980-85	GR1986-91	GR1992-96	GR1997-2001
Andhra Pradesh (AP)	1,6	4,5	4,2	8,5
Assam (AS)	2,9	0,7	0,6	3,0
Bihar (BI)	3,8	1,7	-2,1	4,4
Gujarat (GU)	4,6	5,1	8,6	0,8
Haryana (HR)	1,5	4,6	1,7	3,7
Himachal Pradesh (HP)	-1,5	5,3	3,2	5,6
Karnataka (KA)	3,4	4,7	3,2	7,6
Kerala (KE)	-0,9	4,4	5,6	5,1
Madhya Pradesh (MP)	0,1	4,1	3,9	0,7
Maharashtra (MH)	1,6	6,1	7,3	2,5
Orissa (OR)	0,9	1,3	1,7	-0,8
Punjab (PU)	2,9	3,2	2,2	3,6
Rajasthan (RA)	4,2	8,1	3,0	-1,2
Tamilnadu (TN)	2,9	5,0	5,6	4,3
Uttar Pradesh (UP)	1,8	4,1	0,7	1,3
West Bengal (WB)	2,4	2,1	4,9	5,1

Source: see Appendix Table T2

³⁵ For Chinese case, see Démurger et al (2002), Bao et al (2001), and for Indian case see Marjit et al (1996), Sachs et al (2002), Rao et al (1999) among many other studies.

were some of the slowest growing states in the period. During the two post-reform sub-period, (1992-96) and (1997-2001), the growth trend scenario has been mixed, as the eight states (eg. AP, AS, WB etc) have shown overall increase in their growth rates, whereas many states which were high growth performing states before 1991, failed to keep up their growth rates (eg., GU, MP, OR, RA etc).³⁶

The records of the Chinese provinces show that all the 25 provinces have improved their per capita income growth rates from the first sub-period (1978-85) to the third period

Table 6.2: Per Capita GDP Growth Rates: Chinese Provinces

	GR1978-85	GR1986-91	GR1992-96	GR1997-2001
Beijing(BE)	7,5	6,5	10,5	6,4
Tianjin(TI)	7,3	3,4	13,5	7,0
Hebei(HB)	6,9	6,9	13,9	8,6
Shanxi(SH)	8,6	3,9	9,6	6,1
Inner Mongolia(IM)	10,2	5,5	9,2	8,5
Liaoning(LI)	7,0	5,3	9,5	7,6
Jilin(JI)	8,9	5,7	11,4	7,6
Heilongjiang(HG)	6,1	5,9	8,2	8,1
Shanghai(SG)	6,8	5,0	13,8	3,2
Jiangsu(JS)	10,3	7,2	15,1	9,4
Zhejiang(ZG)	12,7	6,4	17,1	8,9
Anhui(AN)	10,3	1,7	16,3	7,9
Fujian(FU)	11,0	8,7	17,8	8,0
Jiangxi(JX)	7,7	6,0	13,5	8,1
Shandong(SD)	10,1	6,9	15,3	9,5
Henan(HE)	10,1	5,4	13,5	8,1
Hubei(HU)	9,6	4,3	13,2	8,6
Hunan(HN)	6,9	4,4	10,5	8,5
Guangdong(GD)	9,7	10,6	14,9	5,7
Guangxi(GX)	6,1	4,7	13,9	7,7
Sichuan & Chongqing(SC)	8,4	5,1	10,4	7,1
Guizhou(GZ)	9,7	5,0	7,1	7,8
Yunnan(YU)	8,8	7,9	9,6	5,8
Shaanxi(SX)	7,2	6,5	8,9	8,3
Gansu(GA)	5,4	6,8	8,9	7,9
Qinghai(QI)	9,8	2,8	6,9	7,9
Ningxia(NI)	7,4	5,0	8,6	7,4
Xinjiang(XJ)	9,7	7,2	5,9	4,8

Source: see Appendix Table T1.

³⁶ See for more details on India's experience with economic reforms and development strategy, Agarwal and Basu (forthcoming), Datt and Ravallion (1998), Ravallion & Datt (1996) etc.

(1992-96), when they have initiated many crucial steps towards economic reforms process (see Table 6.2 above). However, the per capita income growth rate has been falling overall for all the states in the last period (GR1997-2001), as can also be cross checked from their national level growth performance. A close look at the growth rate reveals that even at the beginning of the reforms, some of the provinces (e.g., Zhejiang, Fujian) recorded 11% and above annual GDP growth rates and many other provinces grew at a rate more than 8%. The trend continued even during the third phase of economic reform. The speed has however slowed down a bit in the recent years, which is nonetheless more than that of any developed industrial country. In the sub-period (1997-2001), eleven provinces have recorded growth rate of more than 8 percent per annum, where five provinces are from the east & coastal region (Shandong is the fastest growing, 9.5%), six provinces from central, and one is from the western province.

The above figures show that the growth rate at the regional level in India is much lower through out the period, and many regions even recorded negative growth rate in the period, while in China the record is outstanding, over the period the different regions are growing simultaneously, with east & coastal provinces are the fast growers (e.g., Zhejiang recorded 12.7 % during 1978-1985).

6.2. Estimating Economic Well-being at the Sub-national Level

In this sub-section, we show the estimated results of the well-being indices for the regions to show the quality of life in a more comprehensive manner. Quality of life is then providing the basic element for growth and development as a feedback mechanism. One of our basic purposes here is to indicate that the level of well-being is also crucial factor to show the differential level of economic performance in both countries.

We estimate the economic well-being index for 16 Indian states and 28 Chinese provinces. We propose that the level of well-being increases with the higher values of the index.

In Table 6.3, it is clearly shown that states like Kerala, Punjab, Maharashtra, Tamilnadu are the best performing in terms of well-being level, and on the other hand, Bihar, Madhya Pradesh, Uttar Pradesh, Orissa, Assam are in the lower end of well-being level over the period. The trend has not changed that much even during the two periods of post-reform era.

Table 6.3: State Well-being Index (SWBI): Indian States

	SWBI1980-85	SWBI1986-91	SWBI1992-96	SWBI1997-2001
Andhra Pradesh	0,355	0,394	0,350	0,446
Assam	0,093	0,250	0,337	0,067
Bihar	0,048	0,000	0,000	0,000
Gujarat	0,575	0,672	0,623	0,650
Haryana	0,578	0,490	0,484	0,608
Himachal Pradesh	0,467	0,681	0,733	0,514
Karnataka	0,497	0,547	0,552	0,375
Kerala	0,885	1,000	1,000	1,000
Madhya Pradesh	0,000	0,109	0,162	0,124
Maharashtra	0,643	0,775	0,725	0,811
Orissa	0,107	0,118	0,142	0,061
Punjab	1,000	0,883	0,758	0,990
Rajasthan	0,138	0,156	0,236	0,196
Tamilnadu	0,639	0,722	0,672	0,698
Uttar Pradesh	0,079	0,055	0,111	0,123
West Bengal	0,388	0,412	0,433	0,456

Notes: SWBI is the normalised figure (see equation 7).

We also present the descriptive statistics of the well-being index for Indian states in all the four sub-period in Table 6.4. The figure shows that there is a rise in the mean value of the index, so as the median. However, the standard deviation has increased during the period. This shows that there has been overall increase in the welfare level across the Indian states, but still the level of welfare is divergent in nature.

The southern Indian state of Kerala has been the best performer in terms of well-being level throughout the study period, whereas Bihar has always been showing the state with the poorest quality of life.³⁷

The rank correlation coefficient between the period's well-being levels is pretty high (more than 0.900, for any of the two periods). This is also an indication that the relative position

Table 6.4: Descriptive Statistics of Well-Being Index: India

	Mean	Median	Standard Deviation	CI for Mean
SWBI1980-85	0,405	0,427	0,308	(0,241, 0,569)
SWBI1986-91	0,454	0,451	0,316	(0,285, 0,622)
SWBI1992-96	0,457	0,458	0,283	(0,306, 0,608)
SWBI1997-2001	0,445	0,451	0,331	(0,268, 0,621)

Note: Confidence interval (CI) at 95% level.

³⁷ See Dreze and Sen (1997) for more details on the discussions on Kerala and Bihar

of the states well-being level has not changed much in our analysis, and thus a very clear indication of slow catching up of the states with poor well-being level to the good ones.

Now, we briefly discuss the well-being performance for the Chinese provinces in the Table 6.5, for all the four sub-periods. The figures quickly indicate that the provinces like, Shanghai, Beijing, Tianjin are on the top, and then Guangdong is also on a very high level on well-being. On the other hand, the well-being level is quite low in Guizhou,, Yunnan, Gansu, Sichuan & Chongqing. Heilongjiang, Shanxi, Zhejiang, and Shandong are in the middle level in terms of well-being.

Table 6.5: Provincial Well-being Index (PWBI): Chinese Provinces

	PWBI1978-85	PWBI1986-91	PWBI1992-96	PWBI1997-2001
Beijing	0,817	0,861	0,946	0,962
Tianjin	0,758	0,741	0,733	0,746
Hebei	0,318	0,342	0,426	0,371
Shanxi	0,272	0,333	0,342	0,357
Inner Mongolia	0,156	0,213	0,152	0,248
Liaoning	0,437	0,466	0,443	0,446
Jilin	0,361	0,406	0,439	0,398
Heilongjiang	0,295	0,322	0,331	0,344
Shanghai	1,000	1,000	1,000	1,000
Jiangsu	0,299	0,394	0,458	0,440
Zhejiang	0,258	0,354	0,376	0,454
Anhui	0,152	0,187	0,306	0,237
Fujian	0,184	0,299	0,398	0,396
Jiangxi	0,153	0,178	0,193	0,147
Shandong	0,249	0,322	0,419	0,395
Henan	0,183	0,230	0,351	0,272
Hubei	0,214	0,274	0,339	0,295
Hunan	0,205	0,226	0,276	0,198
Guangdong	0,530	0,593	0,842	0,816
Guangxi	0,175	0,146	0,287	0,195
Sichuan & Chongqing	0,113	0,190	0,127	0,195
Guizhou	0,000	0,000	0,034	0,000
Yunnan	0,014	0,040	0,082	0,132
Shaanxi	0,182	0,274	0,243	0,229
Gansu	0,128	0,159	0,142	0,159
Qinghai	0,168	0,178	0,000	0,216
Ningxia	0,205	0,247	0,294	0,316
Xinjiang	0,205	0,352	0,196	0,327

Notes: PWBI is the normalised figure.

In the Table 6.6, we present the descriptive statistics of the well-being level. The mean value of the index has increased over the period, and also the median value has improved.

There is a slight rise in the variability of the well-being over the year; however the degree of dispersion is much less in Chinese provinces. The rank correlation

Table 6.6: Descriptive Statistics of Well-Being Index: China

	Mean	Median	Standard Deviation	CI for Mean
SWBI1980-85	0.286	0.205	0.231	(0,196, 0,367)
SWBI1986-91	0.333	0.286	0.226	(0,245, 0,421)
SWBI1992-96	0.363	0.335	0.251	(0,265, 0,460)
SWBI1997-2001	0.367	0.321	0.242	(0,273, 0,461)

Note: Confidence interval (CI) at 95% level.

coefficient is also very high between any two periods in the analysis, which implies that the relative position has also not changed much among the Chinese provinces in terms of the quality of life indicator. This is a preliminary indication that even though the Chinese provinces tend to converge in terms of the per capita income growth, but the well-being level may not bear the same testimony.

6.3. Growth and Poverty

Is the growth 'pro-poor' in India and China? The answer is **yes**. Perhaps the rate of poverty reduction in India and China differs considerably, as we can see from Table 6.7 below. The regions own administrative mechanisms are often responsible for failing to implement

Table 6.7: Poverty (headcount ratio, based on national poverty lines, %)

India	1983	1987-88	1993-94	1999-2000	China	1988	1995
Andhra Pradesh	28,91	25,86	22,19	15,77	Beijing	4,35	0,95
Assam	40,47	36,21	40,86	36,09	Hebei	14,95	11,35
Bihar	62,22	52,13	54,96	42,60	Shanxi	38,00	35,10
Gujarat	32,79	31,54	24,21	14,07	Liaoning	14,40	13,80
Haryana	21,37	16,64	25,05	8,74	Jilin	20,75	9,45
Himachal Pradesh	16,40	15,45	28,44	7,63	Jiangsu	15,20	3,25
Karnataka	34,24	37,53	33,16	20,04	Zhejiang	2,90	2,00
Kerala	40,42	31,79	25,43	12,72	Anhui	24,70	13,35
Madhya Pradesh	49,78	43,07	42,52	37,43	Jiangxi	12,85	13,50
Maharashtra	43,44	40,11	36,86	25,02	Shandong	14,15	9,65
Orissa	65,29	55,58	48,56	47,15	Henan	34,25	20,60
Punjab	16,18	13,20	11,77	6,16	Hubei	12,00	15,15
Rajasthan	34,46	35,15	27,41	15,28	Hunan	65,55	18,75
Tamilnadu	51,66	43,39	35,03	21,12	Guangdong	2,40	2,90
Uttar Pradesh	47,07	41,46	40,85	31,15	Sichuan & Chongqing		25,20
					Guizhou	29,15	30,90
West Bengal	54,85	44,72	35,66	27,02	Yunnan	27,60	25,85
					Shaanxi	29,95	29,00
					Gansu	38,00	40,95

Source: Indian data obtained from Planning Commission statistics, and Khan & Riskin (2001) for Chinese data.

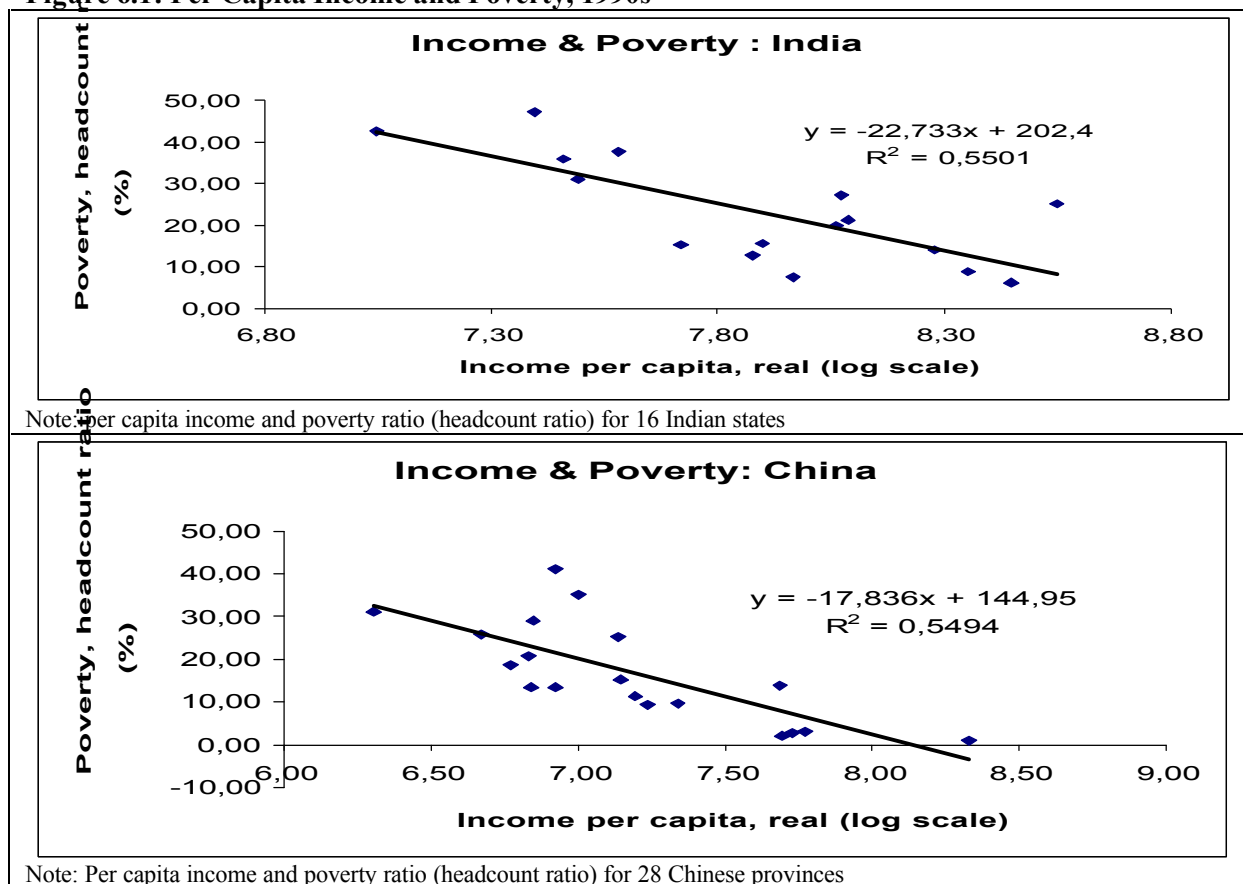
different pro-poor economic policies. In many of the Indian states, poverty rate has actually fallen considerably during the post-reform period; with Haryana, Kerala, Punjab and West Bengal as some of the best stories (these are the states also which have done well in terms of well-being and governance).

The poverty figures for all the Chinese provinces are not available, as we only have statistics of nineteen provinces.³⁸ The statistics of two different time points show that the rate of poverty has declined in majority of the provinces (thirteen out of nineteen) during the period. Beijing has very low poverty (0.95), whereas in Gansu (40.95), Shanxi (35.10), Guizhou (30.90), the poverty figure is high. In some provinces, Jiangxi, Hubei, Guangdong, Guizhou and Gansu, poverty rate has gone up during the period.

The above discussion also testifies the fact that during the 1990s, with the rise in the level of per capita income in both India and China, there is a sharp decline in the rate of poverty across regions. Thus, both the Indian and Chinese experience shows that during the era of economic reforms, the poverty has declined steadily with a rising real income level.

Figure 6.1 shows that there is a positive impact of higher level of income on the

Figure 6.1: Per Capita Income and Poverty, 1990s



³⁸ They noted that ‘reporting of results by warning again that some of our provincial samples are not large enough to provide estimates than can be accepted with confidence’ (p.65).

poverty reduction. The simple scatter for the states/provinces in India and China shows that with the rising per capita income level, the headcount poverty rates declines steadily.

6.4. Economic Inequality

There has been a major concern in both countries that as some of the states are performing better than the others this would eventually induce more economic inequality among the regions. Perhaps, with growing rate of inequality in a society, the social tension increases, and eventually affects negatively the growth process.

We present here in Table 6.4, the Gini ratio to offer some indication of the status of the economic inequality among regions. Over the period, the inequality has gone down to some extent, yet the average of all these 16 states show that the ratio is still as high as 0.276 (perfect economic equality implies Gini value of 0.00). The states like Tamilnadu and Maharashtra have recorded highest inequality; while in Assam and Rajasthan have recorded the lowest rate in the recent sub-period.

Perhaps, during the post-reform period in India, the majority of the states have recorded a fall in the economic inequality ratio. On the other hand, the average of 19

Table 6.4: Economic Inequality (Gini Index)

India	1983	1993-94	1997	1999-00	China	1988	1995
Andhra Pradesh	0,311	0,289	0,31	0,274	Beijing	0,305	0,305
Assam	0,23	0,231	0,251	0,256	Hebei	0,293	0,282
Bihar	0,279	0,265	0,369	0,263	Shanxi	0,320	0,324
Gujarat	0,214	0,261	0,264	0,261	Liaoning	0,293	0,282
Haryana	0,293	0,29	0,262	0,263	Jilin	0,354	0,338
Himachal Pradesh	0,288	0,355	0,251	0,267	Jiangsu	0,383	0,375
Karnataka	0,319	0,292	0,281	0,281	Zhejiang	0,286	0,362
Kerala	0,352	0,315	0,315	0,295	Anhui	0,249	0,272
Madhya Pradesh	0,301	0,302	0,284	0,277	Jiangxi	0,230	0,287
Maharashtra	0,311	0,326	0,322	0,302	Shandong	0,285	0,432
Orissa	0,282	0,274	0,289	0,267	Henan	0,299	0,275
Punjab	0,299	0,27	0,262	0,264	Hubei	0,231	0,311
Rajasthan	0,324	0,275	0,266	0,245	Hunan	0,255	0,302
Tamilnadu	0,337	0,326	0,263	0,339	Guangdong	0,306	0,390
Uttar Pradesh	0,305	0,301	0,308	0,286	Sichuan & Chongqing	0,265	0,340
West Bengal	0,307	0,293	0,245	0,276	Guizhou	0,295	0,304
					Yunnan	0,287	0,299
					Shaanxi	0,289	0,398
					Gansu	0,263	0,359

Source: Indian data obtained from Planning Commission statistics, and Khan & Riskin (2001) for Chinese data.

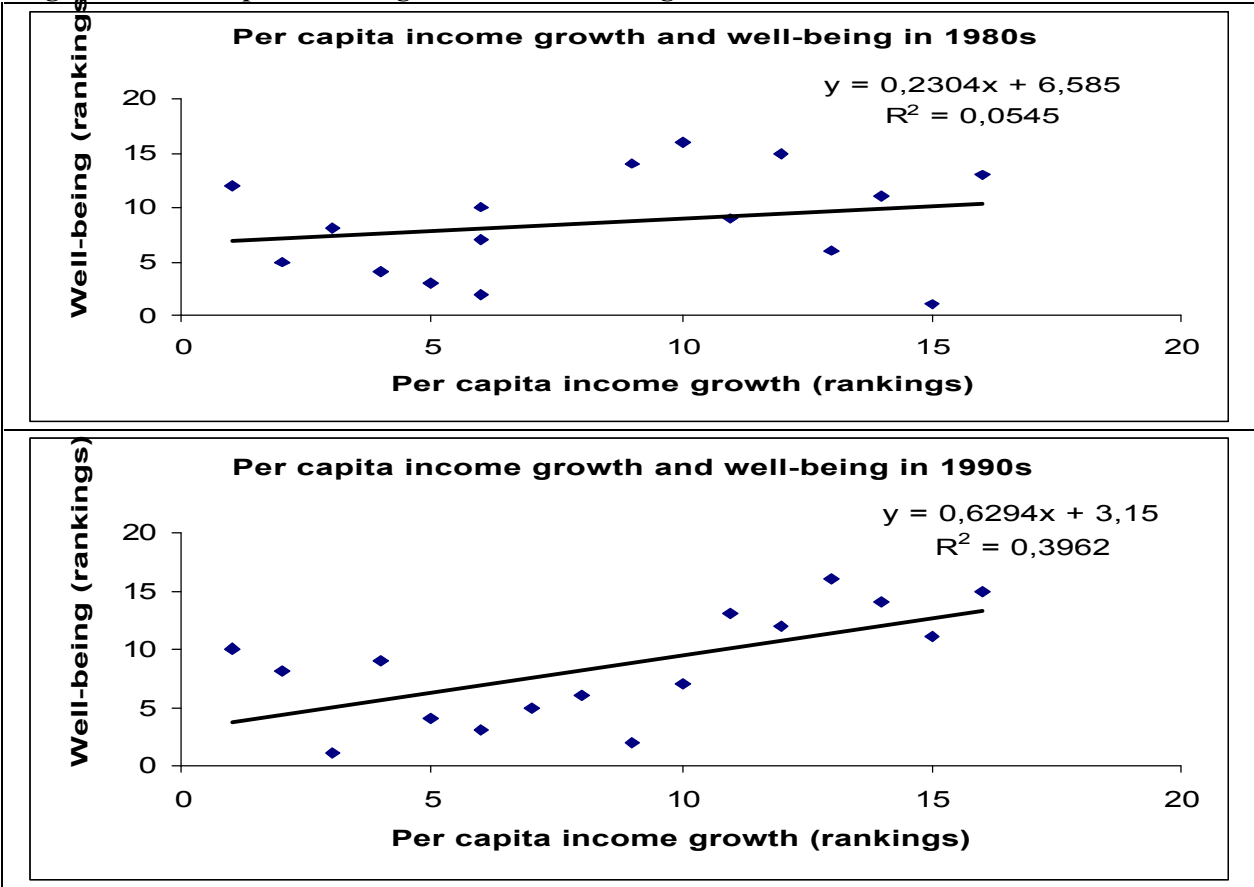
provinces shows that over the period the inequality has slightly increased in China. In 1995, the average of all these 19 provinces stands at 0.328 (more than the average of 16 Indian states). The high inequality is recoded in provinces like, Shandong and Shaanxi, while Hebei and Liaoning have the lowest rate of inequality among the nineteen provinces in China for the recent year. The above discussion is an obvious indication that there are still problems of economic inequality in both India and China at the sub-national level.³⁹

6.5. Well-being, Income and Poverty: Some Correlates

In this section, we provide evidence from the sub-national level that states/provinces which have registered higher income (level or growth) are the states/regions have bettered in terms of rising well-being level. The simple correlation coefficient between well-being and per capita income (real) level during 1990s is 0.836 for India and 0.921 for China (both coefficients are significant at 1 % level).

In the Figure 6.2 below, we present the case of India in 1980s (1980-1991) and in

Figure 6.2: Per capita income growth and well-being in India



³⁹ For the Chinese experience with economic reforms and development strategy, see Chow (1994), Lin et al (1996), Ravallion and Chen (1998), Khan & Riskin (2001).

1990s (1992-2001) the scatter between income growth rate (per capita) and the well-being rankings. We notice that the states with higher rankings in terms of per capita income growth are positively related (upward sloped trend line) to well-being rankings.

We have also shown the same results in the following Figure 6.3 for Chinese case during 1980s and 1990s.

Figure 6.3: Per capita income growth and well-being in China

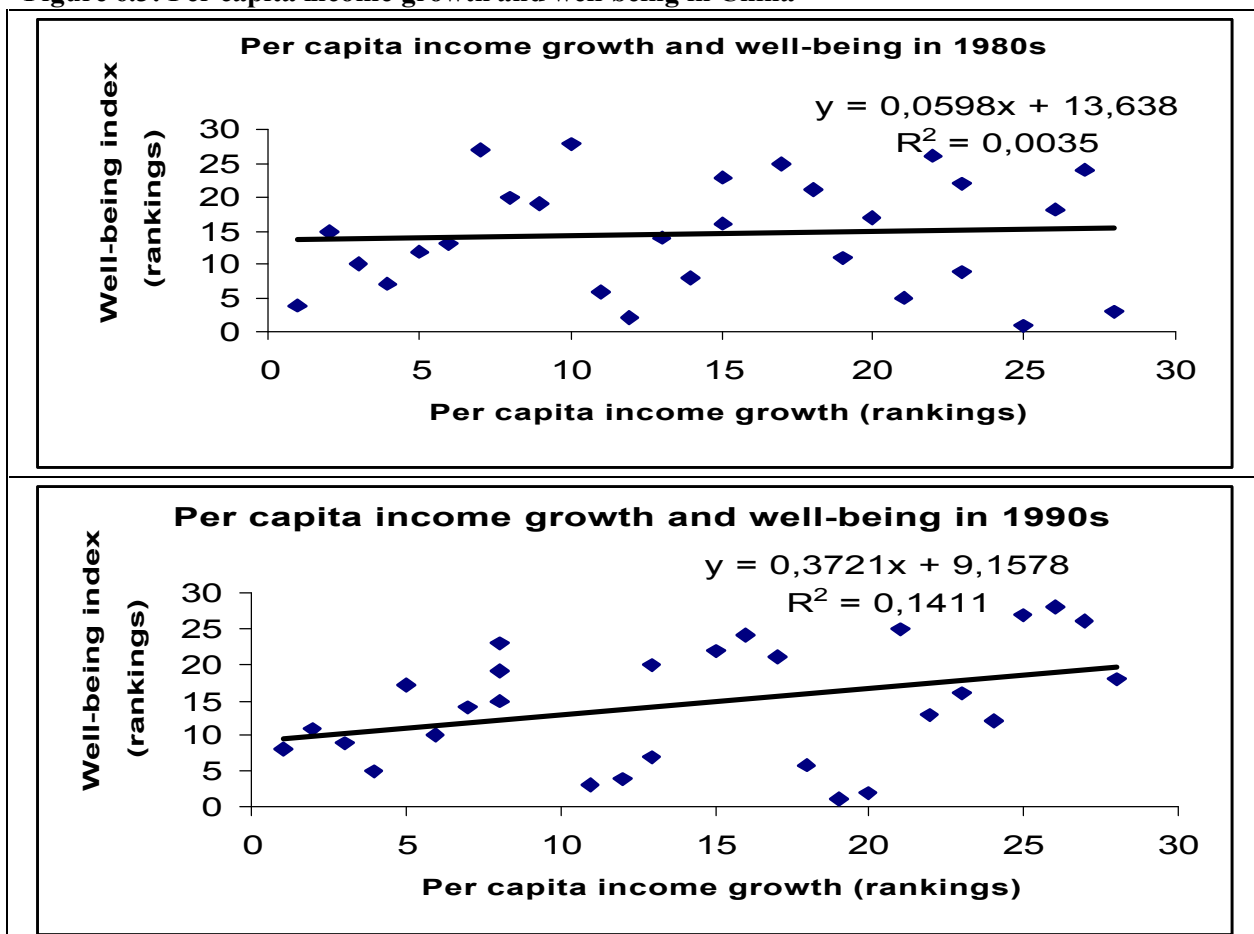
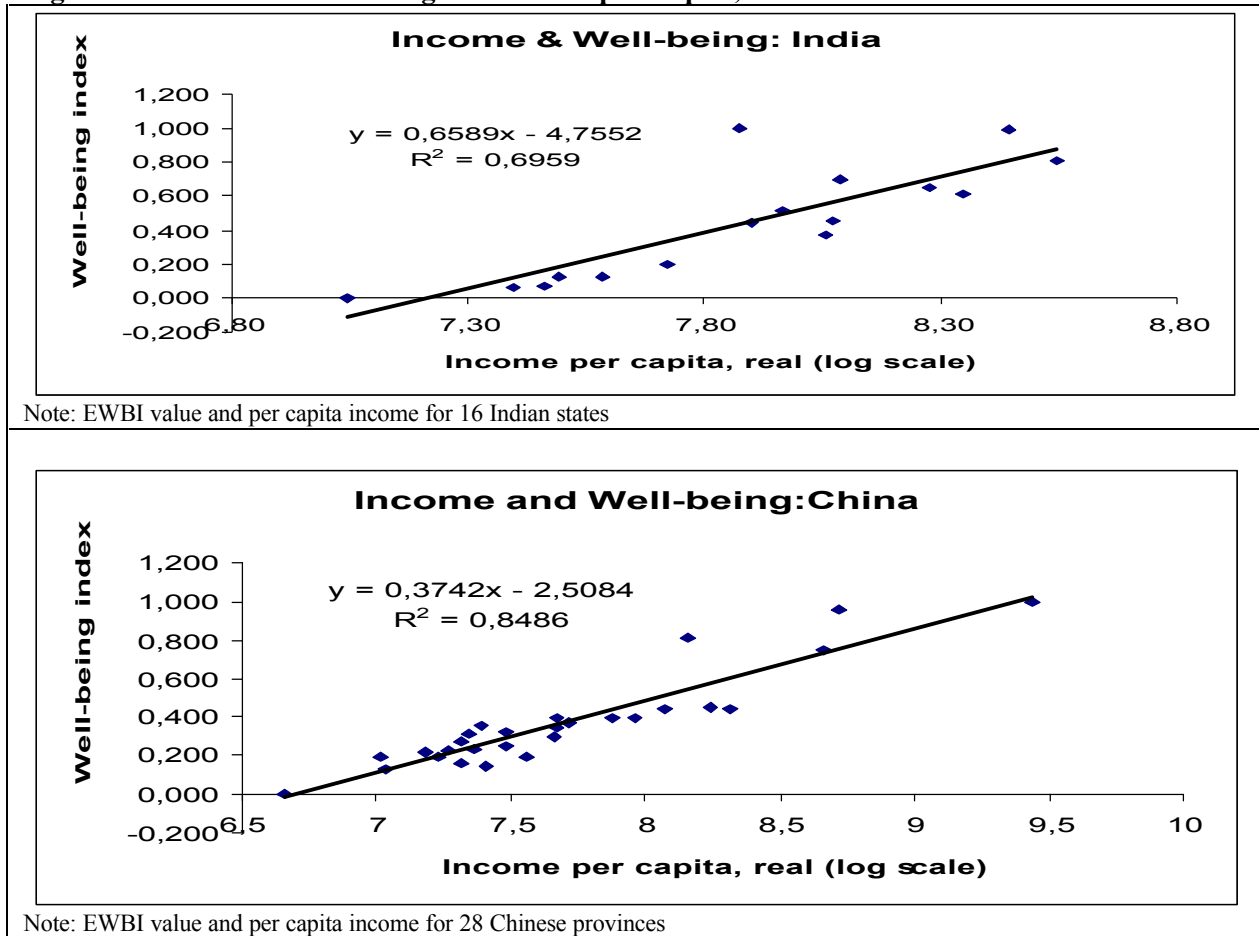


Figure 6.4 shows per capita income (real) and well-being level scatter diagram for both India and China. This also shows an upward positively sloped trend line, implying that with there is a correlation between income and well-being level.

Similarly, the correlation between well-being and poverty in India is -0.753, and for China is -0.721 (both coefficients are significant at 1 % level).

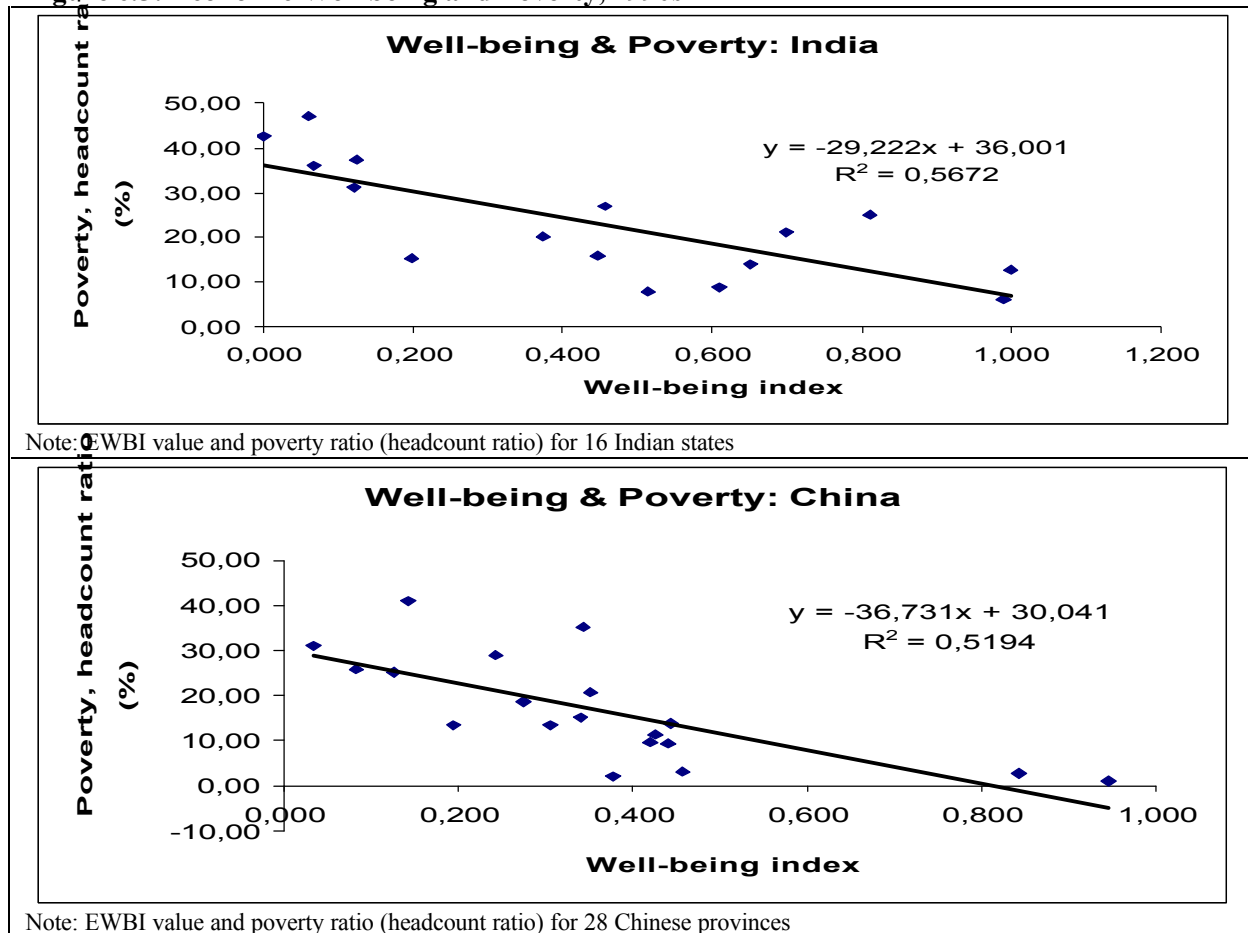
Figure 6.4: Economic Well-being and Income per Capita, 1990s



We show in Figure 6.5 that economic well-being has been also critical in reducing poverty level in India and China. This is a good indication that growth level is strongly correlated with well-being. We can therefore see that the regions, which are doing, better in terms of income is also the regions that better in terms of well-being (See Appendix Table T8 and T9 for rankings of states/provinces in terms of income and well-being level). We also clearly observe that there is a strong correspondence between rise in the level of well-being and reduction of poverty rate for both in the Indian and Chinese experiences.⁴⁰

⁴⁰ It may be interesting just to point here that in the Indian case, apart from the experience of Kerala, other states have shown a strong correspondence between income growth and well-being level, so as in China, where provinces like Shanghai, Beijing, Tianjin are not only best performers in terms of income growth, but also they are the best in terms of well-being indicator.

Figure 6.5: Economic Well-being and Poverty, 1990s



7. Concluding Remarks

In this paper, we show how during the economic reform process, rising level of income is actually correlated with higher level of well-being. Both in India and China, we have documented that during an era of economic reform, both at the national level and sub-national level, the economy has moved to not only to a higher growth level, but at the same time, has been able to achieve more welfare level and reduced poverty incidence.

Our analysis at the *regional level* is also showing that both in India and China, the high correlation between income and well-being. Although there is evidence of differential level of growth at regional level, but overall progress has been registered.

The analysis of the *well-being* level in India and China has also provided us with the tool to explain the welfare differential at the regional level during economic reforms. The basic results in this study have shown that the welfare status of the regions has not changed much during the period, implying less variation in the inter-region well-being level.

Perhaps, observations on economic inequality are not very glowing in this analysis. Our preliminary evidence has pointed out that there remains a high inequality in both countries. The dramatic growth in China has not been yet able to reduce income inequality both at the national and regional level. Perhaps the Indian case, we have found that there has been a slight fall in inequality level during the economic reform process.

We may note that the reform story in both countries is based on diverse and complex set of issues, rather than only pure economic indicators. The political-cultural-ethnic diversity is the crucial element on the whole approach of reform. India is based on multi-party system, with regional parties having gained increasing influence in deciding the overall national policy. The diversity of cultural and political structure and the differential development outcome at the regional level seemed to have prevented India from focussing on a single-minded policy goal. In contrast China has exercised flexibility accorded through a one-party system, and concentrated on policies without any interest divergence.

Perhaps, Chinese society had strong determination and commitment towards upliftment of the living standard of the population. The Indian society is still not sure about how far and in what manner to embrace globalisation of the national economy.⁴¹

From our analysis, we find preliminary evidence that during the time of economic reform process in both countries, there as been a progress to achieve and/or fulfil our **3-D approach** to development concept that embraces within her framework the dimensions of reducing “**Discrimination, Distress and Destitution**” at the global level and/or within countries. Our present paper shows that in India and China, experience during the last two decades have been quite successful in reducing three development notions in socio-economic spheres. Thus, we trace that with higher income country actually achieves a better standard of living and consequently reduce poverty incidence to help induce more well-being level.

Therefore from all of these different evidences, both at the macro and micro level, we may conclude that *income* is *correlated* with *well-being level* both in India and China during their respective economic reform process.

⁴¹ There are still many doubts about possible economic and social outcome of globalisation, see for such increasing concern of scepticism Rodrik (1997), Stiglitz (2002).

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Appendix Tables

Table T1: Sources of Indicators for 28 Chinese Provinces

Indicators/variables	Units/period covered	Sources
Gross Domestic Product	(in yuan), 1978-2001	State Statistical Bureau (various years), China Statistical Bureau (various years)
Population	(in persons), 1978-2001	China Statistical Bureau (various years)
Adult Literacy Rate	(%), 1982, 1989, 1995, 2001	China Statistical Bureau (various years)
Combined gross enrolment ratio	(%), 1984-2001	China Statistical Bureau (various years), Institute of developing economies
Infant mortality rate	(per 1000), 1978-1998	State Statistical Bureau (various years), Mortality data of Chinese Population (1995)
Life expectancy	(years), 1981, 1989	Mortality data of Chinese Population (1995)
Population per hospital bed	(number), 1978-2001	State Statistical Bureau (various years), China Statistical Bureau (various years)
Per capita electricity consumption	(kwh), 1990, 1995, 1999-2001	China Statistical Bureau (various years)
Post offices	(per 100000 population), 1978-95, 1998, 2001	China Statistical Bureau (various years)
Telephone lines	(per 100000 population), 1978-95, 1998, 2001	China Statistical Bureau (various years)
Road length	(per 100 sq.km), 1978-2001	China Statistical Bureau (various years)
Railways	(per 100 sq.km), 1981-2001	China Statistical Bureau (various years)
Irrigated area	(1000 hectares), 1985-1997, 2001	China Statistical Bureau (various years)
Total sown area	(1000 hectares), 1985-1997, 2001	China Statistical Bureau (various years)
Chemical fertilisers	(kg per 1000 hectares), 1985-1997, 2001	China Statistical Bureau (various years)
Total grain sown area	(1000 hectares), 1985-1997, 2001	China Statistical Bureau (various years)
Total employment	(number), 1978-2001	State Statistical Bureau (various years), A Compilation of Historical Statistics (SSB 1990), Hsueh, Li and Liu (1993)
Gini Index	(%), 1988, 1995	Khan and Riskin (2001)
Poverty rate (headcount)	(%), 1988, 1995	Khan and Riskin (2001)

Table T2: Sources of Indicators for 16 Indian States

Indicators/variables	Units/period covered	Sources
Gross Domestic Product	(in Rs), 1980-2001	EPW, Economic survey (various years)
Population	(in persons), 1981, 1991, 1992-2001	Census of India, CMIE
Adult Literacy Rate	(%), 1981, 1991, 1995, 1997, 1998, 2001	Census of India, NHRD 2002
Combined Enrolment ratio (gross enrolment for boy and girls for primary and middle schools, Classes I-VII: 6 to 14 years)	(%), 1981, 1991, 1995-2001	CMIE, Economic survey (various years)
Infant mortality rate	(per 1000), 1981, 1991, 1992-2001	CMIE, Economic survey (various years)

Life expectancy	(years),1981, 1991-95, 1992-96, 2001-06	Statistical Abstract of India CMIE(Various issues)
Population per hospital bed	(number), 1981, 1989, 1996,1998-99	Health Information of India, CMIE
Per capita electricity consumption	(kwh), 1980-81, 1986-91, 1992-96, 1996-99	Statistical Abstract of India CMIE(Various issues)
Post offices	(per 100000 population), 1980, 1990, 1997, 1999-00	CMIE(Various issues), GOI
Bank Branches	(per 100000 population), 1980, 1990, 1997, 2002	CMIE(Various issues), GOI
Telephone lines	(per 100000 population), 1980, 1990, 1997, 2000	CMIE(Various issues), GOI
Road length	(per 100 sq.km), 1981,1991, 1996-97, 1998	CMIE(Various issues), GOI
Railways	(per 100 sq.km), 1981, 1991, 19989, 2001	CMIE(Various issues), GOI
Irrigated area	(1000 hectares), 1980-81, 1990-91, 1995-96, 2001	Fertiliser Statistics of India & CMIE(Various issues)
Total sown area	(1000 hectares), 1980-81, 1990-91, 1995-96, 2001	Fertiliser Statistics of India & CMIE(Various issues)
Chemical fertilisers	(kg per 1000 hectares), 1980-81, 1990-91, 1995-96, 2000-01	CMIE, Fertiliser Statistics of India
Total grain sown area	(1000 hectares), 1980-81, 1990-91, 1995-96, 2000-01	CMIE, Fertiliser Statistics of India
Villages Electrified	(%), 1981, 1991, 1996, 1999	Census of India, Economic survey (Various years)
Total employment	(number), 1981, 1991, 1997, 1999-2000	Labour Bureau of India, Manpower profile
Gini Index	(%), 1983, 1993-94, 1997, 1999-00	NSSO, Planning Commission
Poverty rate (headcount)	(%), 1983, 1987-88, 1993-94, 1999-2000	NSSO, Planning Commission
Population living in Urban Area	(%), 1981,1991, 1997, 2001	CMIE, NHRD 2002

Table T3: Economic Reforms Strategies

Areas of reform	India	China
Agriculture	<ul style="list-style-type: none"> * Policies on Agricultural marketing and export promotion * Decontrol & deregulation of agricultural sector *Setting up of the Agri-Export Zones (AEZs). * Policies on Seeds, Fertiliser, Irrigation, Credit & Insurance 	<ul style="list-style-type: none"> * Elimination of the public monopoly on the purchase and sale of the main agricultural products. * Legalisation of the rental of land uses rights and law on land administration. * Creation of Town & Village Enterprises (TVEs) and Household Responsibility System of land tenure * Policies to develop new variety of crops for higher yields.
Industry	<ul style="list-style-type: none"> * Reduction of industrial licensing, and Setting up of Disinvestment Commission to liquidate loss making public sector companies. * Incentives to Small Scale Industries (SSIs). * Disinvestment of loss making public sector undertakings (PSUs) and reduction of PSUs. 	<ul style="list-style-type: none"> *Industrial reform, enterprise reform, revitalising enterprises & creation of management responsibility system. * Reform and mass privatization of the State Owned Enterprises (SOEs) * Law on economic contracts with foreigners and measures to encourage foreign investment.

Services	<ul style="list-style-type: none"> * Enhancing the limits of foreign equity participation in domestic industries * Reduction of corporate income tax & excise duties * Instituting Foreign Investment Promotion Council (FIPC) and Board (FIPB). VII. Comprehensive package for development of Special Economic Zones (SEZs) * Setting up of 100% Export Oriented Units (EOUs) & Export Processing Zone (EPZs) & Technology park. * Policies to promote financial, banking & insurance sector. *New Information Technology Act to give boost to e-commerce. 	<ul style="list-style-type: none"> * Unifying income tax and applying VAT to a broader range of products. * Establishment of Coastal Open Economic Zones (COEZs), Border Economic Cooperation Zones (COEZs). * High privilege for Special Economic Zones (SEZs) and 'Industrial Export Zone'. * Establishment of Economic & Technological Development Zones (ETDZ), and 'Coastal development strategy'. * Contractual Responsibility System (CRS) for National foreign trade companies, and provincial governments. * Law for more independent central bank. *Policies for promoting science and technology
Trade/external sector	<ul style="list-style-type: none"> * Removal of quantitative restriction (QRs), * Reduction and rationalisation in tariff rates on imports *Eliminating licensing & discretionary controls * Delicensing of Imports of capital good & raw materials * Reclassification of tariff categories VI. Simplified rules for FDI & FII's *Full convertibility of current account balance & phasing out of capital account convertibility * Market based exchange rate * Improved access to export incentives, and Rationalisation of export promotion schemes, trade facilitation & other changes in tax administration. 	<ul style="list-style-type: none"> *Removal of quotas and import licenses * Reduction of average tariff rates on imports * Abolition of import licensing on major categories of goods. * Decentralisation of foreign trade, and reduction of tariffs on capital goods. * Eliminating tariffs from wide range of product categories. *Preferential policies for foreign investment, and tax holidays * Unified and market based exchange rate system. * High decentralisation of control over foreign trade. *Setting up of a 'special zone open to foreign investment'.
Infrastructure	<ul style="list-style-type: none"> *Setting up of the Infrastructure development corporation company (IDFC) to finance infrastructure sector * Policies on Power, Renewable energy, Port, Highways, Telecom, Posts, Railways, Civil aviation, Road transport, Shipping, Urban & Rural infrastructure. 	<ul style="list-style-type: none"> * State Council emphasised the better provision of infrastructure facilities *Health insurance system for retired people.
Social sector	<ul style="list-style-type: none"> * Providing basic minimum services (BMS), and also National scheme on socially and economically weaker section (The National Schedule 	<ul style="list-style-type: none"> * The compulsory education system that stipulates obligatory schooling to increase to nine years

	<p>Castes & Schedule Tribes Finance and Development Corporation)</p> <p>*Launching campaign for the National Literacy Mission (NLM). *100% coverage of provision of safe drinking water, sanitation, primary health services; universalisation of primary education, housing to poor families * Poverty reduction & employment reduction programmes (IRDP, NRY, TRYSEM, NSAP etc.) *National policies on Women and child development policies and Strengthening of population and family welfare programme.</p>	<p>* Increased coverage of education and public health in neglected areas. * Labour law making employment contracts mandatory for all industrial companies, including TVEs. *Law authorising redundancies. Introduction of an employment system and an unemployment insurance system. *One Child policy and introduction of comprehensive policy on family planning</p>
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Table T4: Long Term Growth Performance (GDP Growth Rate %)

Period average	India			China		
	National Estimates *	ADB Estimates +	World Bank Estimates	National Estimates **	ADB Estimates	World Bank Estimates
1960-70	4,0		3,9			3,7
1971-78	3,7		3,7			5,0
1979-90	4,9		5,0	9,1		8,8
1991-2000	5,7	5,9	5,5	10,1	8,3	10,2
2001	5.6	5.4		7,30	7,3	

Notes. * The Indian national estimates are based on GDP at factor cost at 1993-94 prices. ** The Chinese National estimates are based on the indices which are calculated at comparable prices. + ADB estimates are from 1992. WB data is based on annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 1995 U.S. dollars.

Sources: World Development Indicators 2002, The World Bank; Asian Development Bank 2002 Annual Report; Economic Survey of India 2002-03; China Statistical Yearbook 2002.

Table T5: Investment Rate (% of GDP)

Period average	India			China		
	Investment (% GDP)	Public Sector (%GDP)	Private Sector (%GDP)	Investment (% GDP)	Public Sector (%GDP)	Private Sector (%GDP)
1970-78	18,94 (-0.093)	7,29	11,65	20,43 (-0.557)	19,68	10,22
1979-90	22,43 (-0.405)	9,89	12,54	36,09 (-0.503)	17,36	18,04
1991-1998	22,76 (-0.590)	7,73	15,03	36,19 -0.376	19,32	18,10
2000 ^a	21,89			36,13		

Notes: ^a GFCF (gross fixed capital formation, % of GDP). Figures in parentheses correlation coefficient between private and public investment.

Sources: + World Development Indicators 2002, World Bank. Indian data obtained from Economic survey of India 2002-03.

Table T6: Economic Transformation (Sectoral contribution to GDP)

	India				China			
	Agriculture	Industry	Manufacturing	Services	Agriculture	Industry	Manufacturing	Services
1960-70	45,1	19,5	13,7	35,4	37,0	35,7	29,8	27,4
1971-78	42,3	22,1	15,3	35,6	32,1	44,7	37,3	23,2
1979-90	34,3	26,1	16,5	39,7	29,3	44,6	36,3	26,1
1991-2000	28,9	26,8	16,4	44,3	19,8	47,9	34,1	32,2

Notes: Agriculture, Industry, Manufacturing and Services are in value added and in percentage of GDP.

Sources: World Development Indicators 2002, World Bank.

Table T7: Social Transformation (Selected Indicators)

	India				China			
	1960-70	1971-78	1979-90	1991-2000	1960-70	1971-78	1979-90	1991-2000
LE	46.8	51.7	56.3	61.1	51.6	64.4	68.1	69.6
IMR	150.5	130.4	99.3	73.5	102	50.9	39.2	34.8
AIR	66.9	63.4	55.2	46.3	48.7	42.4	29.1	19
ERP	77.8	80.9	92.2	99.6	90.9	121.9	120.3	117.8
ERT	4.9	5.1	5.8	6.3	0.1	0.6	2.5	4.7
GINI		0.38	0.318	0.3		-0.212	0.347	0.403
		-0.312	-0.302	-0.258			-0.3	-0.327
POVHC		51.32	38.66	26.1		28	8.3	4.6
URS		8	5.23	3.15			2	3.1

Notes & Sources: LE (life expectancy, total years), IMR (Mortality rate, infant, per 1,000 live births), AIR (Illiteracy rate, adult total, % of people ages 15 and above), ERP (School enrolment, primary, % gross), ERT (School enrolment, tertiary, % gross). The data related to period average for both countries. The Gini, Poverty (head count ratio) and Unemployment rate (% population in total labour force) figures related to latest available years in the same period. \$ The incidence of unemployment in India is defined as the percentage of persons unemployed in the age group 15 years and above on the usual principal and subsidiary status to the total number of persons in the labour force. The national figure is the simple average of urban and rural unemployment rates. The figure on unemployment and poverty ratio are related to years 1972-73, 1977-78, 1983, 1987-88, 1993-94 and 1999-2000. The NSSO Rounds on Employment and Unemployment. Poverty ratio data for India quoted from planning commission. Gini ratio for per capita consumption expenditure data obtained from NSSO Rounds. Gini ratio (...) implies rural figures. The figures are quoted from ILO 1996. Gini is also quoted from WIID of WIDER/UNDP. Other figures for India and China are obtained from World Development Indicators 2002, The World Bank.

Table T8: Rank of State Well-being Index (SWBI): Indian states

	SWBI1980-85	SWBI1986-91	SWBI1992-96	SWBI1997-2001
Andhra Pradesh	10 (9)	10(9)	10(11)	9(9)
Assam	13(11)	11(15)	11(14)	14(14)
Bihar	15(16)	16(16)	16(16)	16(16)
Gujarat	6(4)	6(4)	6(4)	5(4)
Haryana	5(3)	8(2)	8(3)	6(3)
Himachal Pradesh	8(6)	5(6)	3(8)	7(8)
Karnataka	7(8)	7(8)	7(7)	10(7)
Kerala	2(10)	1(11)	1(9)	1(10)
Madhya Pradesh	16(12)	14(13)	13(12)	12(12)
Maharashtra	3(2)	3(3)	4(1)	3(1)
Orissa	12(15)	13(14)	14(15)	15(15)
Punjab	1(1)	2(1)	2(2)	2(2)
Rajasthan	11(13)	12(10)	12(10)	11(11)

Tamilnadu	4(7)	4(7)	5(5)	4(5)
Uttar Pradesh	14(14)	15(12)	15(13)	13(13)
West Bengal	9(5)	9(5)	9(6)	8(6)
Rank correlation	.797*	.706*	.771*	.838*

Notes: (...) rank of per capita GDP; * significant at 1% level. Rank 1 is the best performer and 16 is the worst.

Table T9: Rank of Provincial Well-being Index (PWBI): Chinese Provinces

	PWBI1978-85	PWBI1986-91	PWBI1992-96	PWBI1997-2001
Beijing	2(2)	2(2)	2(2)	2(2)
Tianjin	3(3)	3(3)	4(3)	4(3)
Hebei	7(15)	10(17)	8(12)	11(10)
Shanxi	10(12)	11(18)	13(17)	12(18)
Inner Mongolia	22(18)	20(14)	23(16)	18(16)
Liaoning	5(4)	5(4)	6(7)	6(7)
Jilin	6(9)	6(9)	7(11)	8(11)
Heilongjiang	9(5)	12(8)	15(10)	13(12)
Shanghai	1(1)	1(1)	1(1)	1(1)
Jiangsu	8(6)	7(5)	5(4)	7(4)
Zhejiang	11(7)	8(6)	11(6)	5(5)
Anhui	24(24)	22(23)	16(22)	19(19)
Fujian	17(20)	14(16)	10(8)	9(8)
Jiangxi	23(22)	24(22)	22(19)	26(17)
Shandong	12(17)	13(11)	9(9)	10(9)
Henan	18(25)	18(25)	12(24)	17(21)
Hubei	13(13)	16(13)	14(14)	16(13)
Hunan	14(23)	19(24)	19(25)	22(24)
Guangdong	4(8)	4(7)	3(5)	3(6)
Guangxi	20(27)	26(27)	18(27)	24(27)
Sichuan & Chongqing	26(11)	21(12)	25(15)	23(14)
Guizhou	28(28)	28(28)	27(28)	28(28)
Yunnan	27(26)	27(26)	26(26)	27(26)
Shaanxi	19(21)	15(21)	20(21)	20(23)
Gansu	25(19)	25(20)	24(20)	25(22)
Qinghai	21(10)	23(19)	28(23)	21(25)
Ningxia	15(14)	17(15)	17(18)	15(20)
Xinjiang	16(16)	9(10)	21(13)	14(15)
Rank correlation	0.795*	0.880*	0.816*	0.909*

Notes: PWBI is the normalised figure. (...) rank of per capita GDP. * significant at 1% level. Rank 1 is the best performer and 28 is the worst.

MAP 1: INDIAN STATES



MAP 2: CHINESE PROVINCES

