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Economic Reforms, Growth and Well-Being: Evidence from India

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Abstract

This study examined economic well-being of sub-national units in India since the economic reforms. For this purpose, the study constructed well-being index for 17 major states of India for the period 1981-2011 based on five broad dimensions. Our results showed that the economic well-being of states has declined since the reforms. The inter-state disparities have increased and the states (except Punjab and West Bengal) which performed well prior to the reforms continued to perform well in the post-reform years too. In addition, our regression results for the high well-being and low well-being states revealed that the reforms have benefitted more developed high well-being states, rather than low well-being states. While human capital was found significantly and positively related to per capita incomes in both groups of the states, financial development was positively related in high well-being states, but a negative association was visible in the low well-being states.

Economic reforms, growth and well-being: evidence from India

1. Introduction

Economic policy reforms are often initiated by governments to trigger economic growth, increase per capita incomes, reduce poverty and improve economic well-being.[1] Improvements in the well-being reflect positively through changes in several dimensions such as higher human development; upgrading of skills through technological improvement; and development of infrastructure including financial infrastructure (Suri et al. 2011). Greater focus on inclusiveness, reduction in inequalities and poverty by the reforming governments possibly also lead to improvements in public health, sanitation, education and basic necessities such as access to safe drinking water. Achieving these not only help in meeting United Nations Millennium Development Goals (MDGs), but accelerate economic growth even further (World Bank 2007).[2]

While economic reforms accelerate economic growth, they can lead to differences in the well-being within the country, perhaps due to the uniqueness of each region, differing resource endowments and variations in the stage of development (Clifton & Diaz-Fuentes, 2011; Lin & Rosenblatt, 2012). In this study we examine the impact of economic reforms on economic growth and well-being in the different states of India.[3] The study of the experiences of sub-national units is crucial as they play an important role in the achievement of MDGs and poverty reduction (Williams et al. 2005). Our objective in this study is to understand (i) where each state lies in terms of well-being; (ii) what factors determine growth of the states if there is a difference in well-being? (iii) what factors determine growth of the states with respect to the reforms (i.e. before and after reforms)?

India - with its 28 states and 7 union territories – is a unique case to study for two major reasons. Firstly, the states are at different stages of development and experiencing

disparate growth rates (Arora 2009).[4] While initially more developed and progressive states clearly benefitted from the reforms, the lagging states continued to face poor growth rates (although recently they have shown some improvement). Several studies have confirmed widening of regional disparities and convergence or divergence since the economic reforms.[5] Overall, these studies considered the differential performance of the states and did not explore economic reforms and well-being of the states within a common framework.

Secondly, the economic reforms were introduced in India in July 1991 with the overall objectives of efficient allocation of resources, raising productivity of the private sector, accelerating economic growth and improving overall well-being. The immediate reasons however were to address the balance of payments crisis and the downgrading of India's credit rating (Bhagwati 1995). Also, major international developments like the disintegration of U.S.S.R. contributed to the reasons for economic reforms (Bhagwati 1995).

The study is structured as follows. Section 2 briefly reviews the literature on the factors influencing regional growth and well-being. Section 3 outlines the methodology, model and data specification. Section 4 discusses the results and the final section concludes.

2. Review of literature

Sachs et al. (2002) classified the Indian states in terms of coastal access, climatic zone, arid or tropical climate and major port cities. They concluded that the forces of convergence, absolute and conditional are weak and the growth may not equalize across all regions. Further, since the states are at different levels of development there is no one-size-fits-all approach as each one has different problems.

Basu (2004) developed economic well-being index for the Indian states by aggregating 15 socio-economic variables for the period 1980-2001. The study further developed an index of good governance by aggregating 13 variables. The findings showed

that governance and economic policies both explain differential level of development across the states in India.

Amin and Mattoo (2008) examined the role of human capital for 14 Indian states for the period 1980-2000. Their study noted that the availability of skilled workers had a greater impact on the services sector output than manufacturing or agriculture as it is more skill intensive. Thus, higher education or the availability of skills is one of the factors which have pulled up the growth rates of some states.

Purfield (2006) argued that the states which had liberalised factor markets and good institutions performed better. The author noted that the gap between the real per capita income of the rich and poor states has increased since the reforms. The richer and faster growing states were also able to reduce the poverty much faster. The study further found that the real per capita GDP growth of the states is related to their initial economic conditions and government policies.

Melchior (2010) argued that for the large countries such as India internal trade is very crucial and therefore, the barriers to internal trade such as poor quality roads need to be brought down to reduce regional disparities.

Lall (2007) examined the contribution of public infrastructure expenditure to regional growth across the 24 Indian states for the years 1981 to 1996. The findings showed that the transport and communications infrastructure are significant determinants of the regional growth in India. In addition, the states also benefit from the neighbouring states' expenditure in network externalities. The study also found that the lagging regions benefit more from infrastructure development than the more developed states.

3. Data, methodology and model specification

In order to examine the states' well-being in the pre-reform and post-reform period we first develop a composite well-being index. Subsequently, using econometric techniques we

explore the determinants of economic growth of the high well-being and low well-being states. We further look at the likely factors which influenced economic growth of the states in the pre-reform and post-reform period.

3.1 Discussion on well-being index

Basu (2004) developed a well-being index for the 16 major states of India for the period 1980-2001 taking into account health, knowledge, income, technological progress and infrastructure. Other studies have also developed an index of economic well-being. For instance, Osberg and Sharpe (2002, 2010) built an index of economic well-being based on four dimensions: average current consumption, accumulation of productive assets for the benefit of future generations, poverty and unequal distribution of income and the degree of economic insecurity. For each dimension, the authors employed a number of qualitative and quantitative indicators. However, data on several of these indicators is unavailable in the sub-national context in a developing economy.

Our study, based on the limited data availability, constructs a well-being index for 17 major Indian states covering around 90% of the country's population for the years 1981-2011. Our study differs from Basu (2004) as it covers a more recent period including the years when India consistently recorded growth rates of 7% and above. Further, we also include new indicators (not covered by Basu) and also a new state.

We consider five dimensions of economic well-being - knowledge, health, income, technology and infrastructure. The sub-indicator under the knowledge component is literacy rate, the data for which was sourced from the Planning Commission, Government of India (GOI).

Under Sen's "capability approach", the well-being is captured by infant mortality, literacy rate and life expectancy (Basu 1987). Infant mortality rate is very high in many Indian states ranging from 12 in Kerala to 67 infant deaths per thousand live birth in Madhya

Pradesh in 2009. The reasons attributed are low female literacy, poor governance and high corruption (Gupta & Trivedi 2008). Controversy however, surrounds this indicator, as according to some, it is biased towards a specific population group and fails to reflect the health of the entire population. Nonetheless, it does reflect the level of a country's economic development, living conditions, education levels and environmental quality (Reidpath & Allotey 2003). Due to ambiguity, we considered using per capita expenditure on health (includes public and private expenditure). However, as consistent data for all the time periods at the sub-national level was not available to us, we used expenditure of the state governments on medical and public health and family welfare as a proportion of their total expenditure and the data was sourced from the annual publication of Reserve Bank of India (RBI) on the state finances.[6] This indicator reflects the commitment of the state governments towards their citizens' health. It however does not take into account private expenditure and out-of-pocket expenses which are significantly high and regressive (as the burden falls more on the poor) in the Indian case (Economic Research Foundation 2006). The out-of-pocket expenses as a percentage of the total private expenditure on health were 86.3% in India in 2010.

The income dimension is represented by per capita income obtained from the Central Statistical Organisation (CSO), GOI. The per capita income is often considered as a proxy for well-being and welfare.[7] The reasons are easy data availability and the advantages of using a single objective monetary value instead of subjective non-monetary indicators. It however does not reflect the income distribution, that is, a high economic growth does not imply that everyone's income is rising (Kuznets 1955). Yet it is useful in comparing the relative performance of the states, regions and countries and is positively associated with higher living standards and human development indicators such as health, education and higher life expectancy (Bernanke et al. 2011).

Under technology, we consider the number of universities in each state and the data was sourced from the state profiles of District Information System for Education. The universities are a significant driver of economic growth and can result in innovation and creation of patents. Amin and Mattoo (2008) established that in India highly skilled labour, measured by the enrollments in the tertiary sector, had a positively significant effect on the services sector growth.

Under infrastructure we consider financial development in each state and the access to safe drinking water. We measure the states' financial sector development by regional M3/SDP and use Bittencourt's (2010) approach of apportioning national monetary aggregate (M_3) to the states using their share of financial sector output in the total financial sector output as the weight giving a more accurate picture of the states' financial development. The annual data on M_3 and state output was obtained from the Handbook of Statistics on Indian Economy, RBI, and CSO.

Access to safe drinking water is a crucial indicator of the well-being as well, as it releases time (mostly for women as they do not have to travel long distances to collect water for the households) for other activities (Klasen 2000). This data is taken from the Planning Commission, GOI. The indicators included in our study are however, not definitive and merely reflect some aspects of the population's well-being. The choice here is mainly reflective of the ease in data availability for all the time points for the selected states.[8]

We denote each dimension of the well-being index represented by health, knowledge, technology, income and infrastructure as D_j where j=1…J, and therefore J=5. Each dimension consists of *n* number of determinants indicated by X_i, and i=1..n. We compute the value X_i for each dimension *j* as follows.

$$X_{ij} = \frac{X_{ija} - X_{ijm}}{X_{iju} - X_{ijm}}$$

(1)

Here X_{ija}, X_{ijm} and X_{iju} respectively represent the observed value, minimum value and maximum value for the ith determinant in j^{th} dimension. The minimum and maximum values termed as 'goalposts' (UNDP, 2009), are the minimum and maximum value of each variable in the different states. Next we use the simple arithmetic average as follows to determine the value for each Dimension D_j.

$$Dj = \frac{\sum_{i=1}^{n} X_{ij}}{n} \tag{2}$$

We further assign weights based on the factor loadings arrived by using Principal Components Analysis (Table 1).

Table 1 here

We finally compute the well-being index (WBI) at the sub-national level as follows.

$$WBI = \sum_{j=1}^{J} \alpha_j D_j \tag{3}$$

3.2 Discussion on empirical estimation

Next, we examine the determinants of economic growth in the high and low well-being states. We also look at the overall factors influencing growth rates of the states (irrespective of their level of well-being) in the years prior to and since the reforms.

Among the factors considered by the existing studies are institutional factors such as transmission & distribution (T&D) losses (Subramaniam 2007; Kochhar 2006); human capital (Amin & Mattoo 2008); physical infrastructure such as roads, electricity (Lall 2007; Lin 2011); and trade composition (Rodriguez-Pose 2006).

T & D losses refer to the theft or loss of electricity between the sources of supply and points of distribution to the end consumers. The losses were significantly high in India in 1971 compared to many developing countries such as Indonesia, South Africa, China and Malaysia. These went up to 24.4% in 2009, still the highest among many developing countries (Figure 1). In our study, we consider T&D losses (TD_{it}) as a proxy measure for institutional development. At the sub-national level, such losses ranged from 1% in Tamilnadu to 28% in Haryana in 1980. Nearly three decades later, this widened to 18-39% (Figure 2). Political and bureaucratic apathy, poor governance and low enforcement of laws are the major reasons behind such power losses (Subramaniam 2007).

Figure 1 here

Figure 2 here

Availability of adequate infrastructure facilities such as energy supply, roads, finance and communication is a precursor to economic growth and development (Kurian 2000). Table 2 shows the trends in selected infrastructure indicators in Indian states. Column 4 shows that amongst the 17 major states, the supply of electricity to villages is less than the national average in at least five states. Teledensity per 1000 population is also below the national average in seven states and varies from a low of 0.41 in Jharkhand to 5.85 per thousand population in Kerala.

Table 2 here

We measure infrastructure development in terms of the length of surfaced roads (in kms) *(RD_{it})* and installed capacity of electricity (IC_{it}). Several studies have noted the positive impact of roads and electricity on poverty reduction, non-farm employment and economic growth, particularly in the presence of infrastructure shortages (Canning & Bennathan 2000). Fan and Chan-Kang (2005) later found that road quality is also important. An investment in

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low quality roads leads to higher returns and a rise in rural non-farm GDP, as compared to a similar investment in high quality roads. Khandker et al. (2012) also noted the positive benefits of rural electrification, namely the increases in labour supply, schooling, household incomes and reduction in poverty.

The most commonly adopted indicator of human capital is the average years of schooling. This data, however, is only available at the national level and not suitable for our purpose. The gross enrolment ratio, which is employed in many studies as a measure of human capital (Mankiw et al.1992; Levine & Renelt 1992), is a flow indicator and indicates the future human capital. As the current average years of education is low in developing countries, high gross enrolment rates point to the future build-up in human capital (Bergheim 2005). The gross enrolment ratio however, shows population which has not yet joined the labour force and started contributing to the GDP (Benhabib & Spiegel 1994; Stroombergen et al. 2002). In our study, we therefore consider literacy rates (LI_{it}). The literacy rate, a stock variable in contrast to the gross enrolment ratio, is particularly relevant in the context of developing countries where a literate person certainly stands apart from the illiterate person (Kendall 2009).

Further, in our analysis we include states' economic structure, that is, the proportion of agriculture and services sector in state GDP *(AG_{it} and SER_{it})*. The agricultural sector, particularly in the context of developing countries, captures not only the economic structure, but also indirectly reflects other socio-economic trends such as rural poverty, inequality, health and sanitation etc. The existing literature also suggests that the agricultural states are more likely to have poor socioeconomic conditions due to low productivity, low capital accumulation and poor technology (see for example, Ravallion & Datt 2002; Ahluwalia, 1978).

The services sector takes a centre stage in the later stages of the economic development accompanied with a gradual decline of agriculture in GDP. In the Indian case, the role of services in accelerating country's growth rates has been well documented in the literature (Eichengreen & Gupta 2011). Finally, to explore the impact of the reforms on the well-being of Indian states we also include a dummy variable representing reforms that took place from 1991 onwards (D_{it}).

We also consider sub-national financial development, measured by regional M3/SDP (FD_{it}), as an important reason for economic growth. The only other study we are aware of, which has looked into the financial development as a source of economic growth at the sub-national level, is that of Kendall (2009). Kendall found that financial development at the local level, indeed, matters for economic growth.

To summarise, for our regression exercise we take states' economic growth measured in terms of log per capita income ($\ln GDP_{it}$) as the dependent variable.[9] The explanatory variables include factors such as state's financial development *(FD$_{it}$)*; state's economic structure i.e. agriculture and services share in state output (*AG$_{it}$* and *SE$_{it}$)*; transmission & distribution losses (*TD$_{it}$*); human capital proxied by literacy rate *(LI$_{it}$)*; infrastructure development measured by road length (*RD$_{it}$)* and installed electricity capacity (*IC$_{it}$*) and a dummy variable (*D$_{it}$*). Our model takes the final form:

$$\ln GDP_{it} = \alpha + \beta_1 FD_{it} + \beta_2 AGit_{it} + \beta_3 SE_{it} + \beta_4 LI_{it} + \beta_5 RD_{it} + \beta_6 TD_{it} + \beta_7 IC_{IT} + \beta_8 D_{it} \qquad (4)$$

Based on the well-being index, we further divide the sample into two groups: high well-being and low well-being states. Thus, the states with values above 0.5 were grouped into high well-being and those below 0.5 into low well-being. For each group we estimate the above relationship separately. Prior to the regression analysis, we also carried out One-way

Anova test to locate the statistical significance of the variables. Our results show that all the variables have significant probability values and therefore, suitable to use in the analysis.

Furthermore, we explore the factors determining states' growth and whether these differed in the pre-reform and post-reform period. We therefore, splitted the sample into two groups once again to represent pre-reform (prior to 1992) and post-reform years (from 1992 onwards). We ran the above regression model for these two datasets to explore the differences, if any, in the the state level economic growth.

Data on real per capita income (at 1993-94 prices) and sectoral output were obtained from CSO, GOI. Figures on T&D losses were obtained from the Planning Commission and Statistical Abstract, GOI. Data on infrastructure (electricity and roads) was collected from Infrastructure Statistics and various issues of Statistical Abstract published by GOI. Data on literacy rate is from the Planning Commission and Census India. The M3/GDP figures have been computed from Handbook of Statistics on the Indian Economy, RBI. These data were collected for the period 1980-2008 covering both pre-reform and post-reform years for 17 major states, covered earlier in our analysis on well-being.

In order to examine the relationship, we use panel Ordinary Least Square (OLS) estimator, incorporating one way fixed and random effects.[10]

4. Results

4.1 Well-being index

The descriptive statistics of well-being index is shown in Table 3.

Table 3 here

As is evident, the average well-being index values have declined since 1991 along with an increase in standard deviation during the period 2001-2011. The increase in variance reflecting escalation in the regional disparities has been noted by other studies as well (Basu 2004). The mean index value is certainly lower than that achieved in 1981.

Table 4 shows the ranking of the states in the well-being index during the four time periods- 1981, 1991, 2001 and 2011.

Table 4 here

We further group the states into two main categories: states with high well-being (above 0.5) and those with low well-being (below 0.5). Arranging the states accordingly shows that nine states were below 0.5 in 1981. This declined to eight in 1991 showing the progress made by the states during this period. It may be noted that economic reforms at the national level were introduced in 1991. By 2001 the number of states below 0.5 had increased to 10 including the prosperous agricultural state of Haryana. This reduced marginally to nine states by 2011 as Gujarat moved up sharply to the third rank in the well-being index. Overall, our estimations did not notice a significant change in the people's well-being despite two decades of reforms, as the number of states with values below 0.5 remained around 8-10. Furthermore, four states that is, Kerala, Maharashtra, Tamilnadu and West Bengal have remained above 0.5 (high well-being states) during the entire period 1981 to 2011. As a word of caution, we need to add that the above results may change with a different selection of indicators and time frame of study.

The ranking of the individual states in the well-being index shows that Maharashtra which was placed second in 1981 improved its ranking in the 1991 and 2001 indices. It was however, overtaken by Tamilnadu in 2011. Interestingly Punjab, a developed high income agricultural state ranking high in the earlier years, slid to the tenth rank in the 2011 index. Among the major factors constraining the state's economic growth are low capital accumulation, poor technology, low human capital and fall in government expenditure (Singh & Singh 2002; Singh 2010). Another case worth mentioning is that of West Bengal which slipped to fourth rank in 2011from the highest rank in 1981. At the bottom end, the picture

remains mixed as some less developed states such as Bihar and Uttar Pradesh, which had performed better in 1981, slid to lower ranks and the reverse was for others such as Rajasthan.

4.2 Regression results

Table 5 presents regression results of the pooled sample. The table indicates that the coefficient on financial development, measured in our study as regional M3/GDP ratio, is positive and significant. Thus in the states with high level of financial development access to bank credit contributes to economic growth. Further, the coefficient on agricultural output as a percentage of total state output is negative and highly significant indicating that the per capita income levels are impacted negatively if a high proportion of the state's output originates from agriculture. On the other hand, the states with high share of services sector perform well on the income front. We further observe a strong and positive relationship with the literacy rate. Among infrastructure indicators, the coefficients on installed capacity of electricity are positive and highly significant. In contrast, a negative and significant relationship between transmission & distribution losses and states' growth rate and income levels indicates that institutional development matters.

Table 5 here

We further examine whether the determinants of economic growth vary between high well-being and low well-being states. The distinction between high and low well-being states in our study is based on the index values of above 0.5 and less than 0.5 (Table 4). Based on the classification above, Table 6 presents our regression results.

Table 6 here

The results for the states with high well-being suggest that financial development impacts positively and significantly on the level and growth of per capita income of the states. Kendall (2007) in a district level study on India found a similar positive relationship between financial development and economic growth.

The results further indicate that it is the services sector which has been the driving force of economic growth since the reforms. Thus, the states with high share of services sector perform well on the income front. This is in conformity with the larger literature on the classical view of structural transformation of the economy which suggests that the rise in services takes place at higher stages of development. In India, contrary to the experience of many countries and also against the theoretical literature, the services sector became a key driver of economic growth bypassing the stage of industrial sector (Dasgupta & Singh 2005). This transformation, however, has been concentrated largely only in the urban areas and despite a growing evidence of increase in the BPO and IT related services in the rural areas, it is still much lower compared to the urban areas (Unni & Niak 2010). Among the reasons cited for the subdued performance of the industrial sector in the recent years are: impact of global crisis, inadequate infrastructure particularly lack of reliable electricity to the small and medium units and credit constraints (RBI 2013; Bhattacharjee & Chakrabarti 2013).

The educational levels also strongly and positively influence per capita income levels as well as economic growth as reflected in significant coefficients on the literacy rate. Our study also considered transmission and distribution losses as an indicator of institutional development. High T & D losses indicate the unwillingness or inability of the government to contain losses emerging from the theft of power. This shows that the lower the institutional development of the states, the lower the income levels. The results indicating the right 'negative' sign show T&D losses as a significant factor in explaining low economic growth.

The results also strongly suggest that the reforms have a favourable impact on the economic growth. This finding indicates that the states which have reduced high regulations, introduced economic reforms and improved investment climate at the state level have generally performed well. Nonetheless, despite improved income levels, they have also led to increased inequalities within the country and also between the rural and the urban areas.

Furthermore, our results show that similar to high well-being states, literacy had a positively significant impact on the economic growth in the states with low well-being as well. Thus, higher the literacy levels in the state, higher the economic growth. The impact of the literacy on growth could be through several channels such as increase in productivity, innovation and technological progress, ability to attract foreign investors and by increasing financial, human and knowledge wealth (Cameron & Cameron 2006). Literacy also has a positive impact on increasing income share of the lowest 40% of the population thus reducing inequality (Ahluwalia 1976).

Installed capacity of electricity had a positive, but not a significant relationship to economic growth. Further, as in the high well-being states, transmission and distribution losses were significantly and negatively related to states' economic growth. The dummy variable indicating economic reforms in 1991 was also found negatively and significantly related to economic growth of the states with low well-being. The withdrawal of the state from many activities following the reforms, decline in bank credit, closure of many rural bank branches and increase in inequality have affected the less developed states. Other studies have also confirmed negative outcomes of economic reforms on the lagging states. However, our database covers years only till 2008. Lately growth rate in less developed states has picked up, particularly in Bihar which has observed growing trends away from agriculture (Ghate & Wright 2013).

We further examined determinants of well-being in the pre-reform and post-reform period. Although large-scale economic reforms were carried out in India in July 1991, limited reforms were introduced even in the late eighties (see Panagariya 2008). Focusing on the comprehensive reform period, in our study we classify pre-reform years as those prior to 1992 and post-reform as 1992 onwards.

Table 7 here

Table 7 shows that in the years prior to economic reforms the contribution of highly regulated and controlled financial sector to states' growth rate was restrained. This however, changed in the post-reform period as financial development is found positively and significantly related to states' economic growth. In the pre-reform period, the agricultural sector played a major role in uplifting states' average income; this, however, turned insignificant in the subsequent years suggesting an enhanced role of the non-agricultural enterprises. Also, other reasons could be tapering of the green revolution effect particularly in the prosperous agricultural states such as Punjab, vagaries of monsoon and lower growth rates experienced by the agricultural sector in recent years compared to other sectors. The coefficients on the literacy rates were significantly positive during both time periods highlighting the need to focus strongly on the education in the states. Even our earlier results (Tables 6) had noted strong positive impact of literacy both in the high and low well-being states.

5. Conclusion

A large number of studies have examined regional disparities in the performance of Indian states since the economic reforms commenced in 1991. Studies have also looked into whether the states have converged to each other in the post-reform period. However, these studies did not explore well-being of the states during this period. Our study constructed well-being

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index for 17 states of India for the years 1981-2011 and sought to understand the differential performance of the states in well-being. The study considered five dimensions of economic well-being - health, knowledge, technology, income and infrastructure. Constructing a composite index, our results revealed that economic well-being in the states has declined over the years since 1991.

The evolution of well-being over the years shows that the forces which shaped the well-being of states in the pre-1991 period continued to persist in the post-reform years as well. This can be seen from the continued high ranking of the top end state, Maharashtra, in all the years, although Tamilnadu overtook Maharashtra in 2011.

Distinguishing by the level of well-being, our study found that economic reforms have benefitted high well-being states. Our results further suggest that the states with high share of services performed well in per capita incomes. Further, human capital (literacy rates) was a significant factor in explaining variations in state's income. The policy implication is the strengthening of human development in order to improve states' income and well-being. This will further benefit the states, as with better human capital as well as infrastructure they also stand to gain from the liberalised trade policies. Additionally, our results suggested that high transmission and distribution losses, indicating low institutional development, contributes negatively to per capita incomes of the states.

Other policy implications are that the reforms should be intensified further and investment climate be improved particularly in the lagging states. The strong positive association of the proportion of services sector to the states' income levels calls for the movement of population from the agricultural sector to the non-agricultural sector. This issue is perplexing as around 52% of the workforce in India is still engaged in the agriculture and in the absence of labour intensive manufacturing absorbing the rural labour force, an

alternative is upskilling of rural population through education and training and promoting growth of the non-agricultural sector.

A limitation of our study is that it does not distinguish between the rural and urban areas. The determining factors could vary significantly across the rural and urban areas. Also we did not take into account the political factors. With the regional political parties in power in many states, alongwith the national parties such as Congress and Bhartiya Junta Party (BJP) in the helm of government in some states, political commitment to economic development can vary and an aspiring and committed political leader can make a large impact on a state's economic development.

Notes

[1] In a highly cited paper, Dollar and Kraay (2002) conjecture that growth is good for the poor as it provides employment, increases their incomes and lifts them from poverty.

[2] The eight MDGs to be achieved by 2015 are eradicate extreme poverty and hunger; achieve universal primary education; promote gender equality and empower women; reduce child mortality; improve maternal health; combat HIV/AIDS malaria and other diseases; ensure environmental sustainability and develop global partnership for development. For more details see http://www.un.org/millenniumgoals/aids.shtml.

[3] The concept of well-being has been much explored particularly in the social context. In our context, we refer in economic terms only and imply as to how much people's lives have improved since the reforms.

[4] In this study we consider only 17 major states covering approximately 90% of the country's population.

[5] See Ahluwalia (1999, 2002); Bhattacharya and Sakthivel (2004); Cashin and Sahay (1996); Dasgupta et al. (2000); Kurian (2000); Nagaraj, Varoudakis, and Veganzones (1998); Pradeep and Chen (2012); Purfield (2006); Rao, Shand and Kalirajan (1999); Sachs, Bajpai, and Ramiah (2002); Shand and Bhide, (2000); Subrahmanyam (1999).

[6] We also considered using social sector expenditure of the state governments as an indicator of health. Social sector includes expenditure on public health, family welfare and education and under the Indian constitution states have been assigned a major role in these areas. Within social sector expenditure, expenditure on education has increased significantly in recent years both in developed and less developed states.

[7] Some studies have used other indicators to measure the quality of life and well-being depending on their scope and objectives (Dasgupta & Weale, 1992; UNDP, 2005; Yoruk & Zaim, 2003).

[8] For instance, other indicators of physical infrastructure which also reflect well-being can be quality of housing, sanitation facilities, type of cooking fuel as it indicates environmental quality and household appliances as they reduce work load.

[9] The model presented in equation (5) also estimated by using GDP as a dependent variable.

[10] In the above model, it is ideal to include lagged dependent variable and estimate the model in dynamic form, as current level of economic growth will affect the next year economic performance. From econometric perspective, to address the issue of endogeneity, such dynamic estimators are preferred over FE estimators. For example, a dynamic panel data model of Arellano and Bover (1995) and Blundell and Bond (1998) system GMM (SYS-GMM) estimator eliminates state specific unobserved heterogeneity by taking the first difference of the time variant variables. To that end we also used SYS-GMM estimators in our analysis. Note that, the model estimated in dynamic form did not pass the specification tests in all our regressions, and we therefore, do not report them here.

Acknowledgments

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