



## **Towards the Measurement of Exclusiveness in the process of Growth after Liberalization in India**

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# **Towards the Measurement of Exclusiveness in the process of Growth after Liberalization in India.**

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## **Abstract**

This paper develops a composite exclusion index which consists of six dimension indexes of exclusion of the people from decent levels of living, minimum level of education, health, socio-economic security, access to organized financial institutions and vulnerability index across the major 16 Indian states during the period from 1990 to 2016 on the basis of the secondary data available from different sources and the unit level data of NSSO. It also accounts for the dynamics of variability of the composite exclusion indexes across the states. We find high degree of variability of the composite exclusion indices as well as the six dimension indices in varying degrees across the states over the period. Our dynamic panel results reveal that the crucial explanatory factors viz; the inequality and the growth rates of per capita NSDP are both economically and statistically significant in explaining the dynamics of the cross state variations in the exclusion process during the post liberalization period. It also substantiates our hypotheses that the growth without redistributive justice has strengthened the exclusion process across the major states of India over time and the persistence of the increasing inequality has also contributed substantially to the exclusion process across the major states of India since the inception of the process of liberalization. Finally we conclude that the high growth trajectory in India has not been inclusive at the desired level since liberalization.

Key Words: Composite exclusion Index; Dimension Indexes; Inequality; Exclusive growth; Dynamic Panel Regression.

## **I.Introduction**

It is well known that India has been enjoying a leading position in respect of growth amongst the countries in the globe since it has started out the process of globalization. Interestingly, it widely recognized that this fastest growth rate in India has been basically driven by the service sector such that the contribution of the service sector to the GDP of India has reached a conspicuous figure of around 66% recently. However, what is surprising to note is that even with the achievement of high growth rate, the employment elasticity of GDP has fallen remarkably from 0.52 to 0.12. Astonishingly, this high growth has been accompanied by the persistence of high level of poverty (26% for rural,15% for Urban and 22% at aggregative level at 2011-12 i.e. 269.3 million people in India lying below poverty line (as per the domestic poverty line) which declined from 355 millions in 2009-10 ,such that such substantial decline seems to be doubtful if the state specific poverty lines are adjusted with the food commodities distributed through the Public Distribution System ( Himanshu, 2013)and 41% as per the international poverty line of \$1.25 per day); high rate of unemployment ( from 7% to a maximum of 11%); massive illiteracy (28%); lack of health facilities for a vast majority of people living especially in rural areas; lack of safe drinking water for a majority of people not only in rural areas but in urban areas also; lack of access to organized financial sector for a vast majority of rural people and lack of other

social amenities of life for descent or dignified levels of living for a vast majority of people. Surprisingly, this high growth rate is still accompanied by the presence of high degree of inequality also such the the gini coefficients of inequality is 0.29 for rural and 0.382 for urban sectors (as measured in terms of per capita consumption expenditure) and the bottom 30 % of the population of rural and urban areas has 15.62% and 11.83% shares in total monthly per capita consumption expenditure, while the top 30% of rural and urban population receive 51.06% and 58.27% share in total monthly per capita consumption expenditure in 2009-10. It is also interesting to note that the trend in the shares of the bottom and top 30% population does not reveal any remarkable change during the post reform period. Parallely, it is also well known that India has started following the policy of inclusive growth since 11<sup>th</sup> five year plan (2007-2012) which was carried forward during the 12<sup>th</sup> five year plan period (2012-2017) with its goal of fastest sustainable inclusive growth.

Now, it is almost undeniable that the term inclusive growth refers to a growth process in which the fruits of growth should be distributed in an egalitarian manner to all sections of people irrespective of castes, religion, ethnicity, sex etc. and also across all regions and sectors. In fact, in the 11<sup>th</sup> plan the inclusive growth was actually defined as a “growth process which yields broad-based benefits and ensures equality of opportunity for all i.e. it stands for equitable development or growth with social justice” This clearly implies a growth process which should involve all people, regions and sectors in a balanced manner such that the growth becomes the participatory growth. So it is interesting to note that the adoption of the policy of inclusive growth essentially implies that the development process pursued in India before the 11<sup>th</sup> plan has definitely led to the exclusion or the deprivation of a vast majority of people from getting the benefits of growth. Therefore, instead of developing an index of inclusiveness, one has to develop an index of exclusiveness and try to account for the same so as to get the insight about the dynamics of exclusion process as an outcome of growth. Moreover, the concept of inclusive growth does not necessarily imply an outcome of the growth process to be percolated amongst all sections of peoples, regions, sectors etc. but it also implies such a participatory growth process so that all sections of peoples especially the disadvantaged group, and all sectors, regions can effectively participate in the hierarchical structure of the growth process. Further our 12<sup>th</sup> five year plan emphasized that this growth process should be pro-poor and sustainable with faster rate of development. In fact, if the inclusive growth process be pro-poor and participatory then both the absolute and relative benefits of growth will reach the poor. This will further reinforce the demand-driven growth process with redistributive justice. However, the inclusive growth process should also be supply driven through the implementation of distributive justice both at the regional, sectoral level as well as the inter-personal level irrespective of castes, ethnicity, sex etc. The supply driven inclusive growth will eventually creates demand driven growth through the expansion of domestic market, employment via the inter-active sectoral development through its backward and forward linkages. However, in this respect, the financial inclusion also matters which actually acts as a complimentary factors to this process of inclusion.

It is true that Indian economy since globalization moved to a high growth trajectory especially for the period 1995 to 2008, albeit, it was short lived followed by decline thereafter and again an upswing process triggered by tremendous expansion of the service sector especially the informal one such that recently the growth rate has reached the figure of 7% per annum. But, surprisingly, this growth of GDP has been accompanied by increased share of profit of the corporate sector with almost stagnant share of wages such that profit elasticity of GDP has reached the figure of around 3 and the percentage of contractual workers in the organized manufacturing sector also increased from 19.7% in 2000 to 34.6% in 2012 , while the employment growth has been slowing down to less than 0.1% per annum. Actually, given the performance of remarkable growth achieved by India since its globalization, the fundamental questions which crop up are: has the growth been inclusive since globalization? or to what degree the growth has been exclusive? Who are excluded? Which regions or states are most excluded? What has been the contribution of growth to this process of exclusion? What role has been played by the increasing degree of inequality?

Actually, the switch over from the process of the growth-led development strategy to growth cum public action-led development process and further to the inclusive growth process obviously indicates our failure of the achievement of the objective of growth with social justice as well as balanced economic growth. Several indicators may be adduced which clearly reveals that our high growth trajectory triggered by the tremendous increase in the contribution of the service sector to GDP (66%) coupled with fall in employment elasticity of GDP and increased inequality, decline in organized sector employment and expansion of informal economy has led to the less than desired level of inclusion process through structural transformation, “trickle-down” effect and also through the various target group workfare programme. The process of exclusion in the development process pursued in India is reflected in terms of:

- 1) Tremendous fall in the relative share of agriculture in the SDP as well as GDP which is accompanied by very lower rate of decline in proportion of workforce in agriculture there by leading to tremendous fall in the productivity of agriculture and hence the exclusion of a majority of people in the rural areas from the fruits of growth process;
- 2) Lack of shifting of workforce from low productivity sector to high productivity sector ;
- 3) Regional imbalances in the growth process;
- 4) Persistence of high level of poverty;
- 5) Increasing trend in inequality both in rural and urban leading to the attainment of the status of high inequality large country such that the total inequality has been boosted by tremendous increase in unban inequality since 1993-94.;

- 6) Exclusion of the large section of people especially the rural people (44%) having lack of access to credit provided by the organized financial sector. This figure for urban sector is only 15% which clearly reveals sharp rural-urban divide
- 7) Exclusion from adequate health facility, education process as well as the dignified or decent levels of living.

Given this backdrop we try to develop indexes of exclusiveness for the 16 major states of India for the period 1990-2016. Naturally, before evaluating the growth and its distributive impact one has to have a complete perception about the metric or index of inclusiveness or the reverse, the exclusiveness which is scarce in the literature such that most of the studies have tried to establish the inclusiveness through the reproduction of some statistics on some of the parameters of inclusiveness( Deb Mahendra 2006, Rao C H H,2009; Himanshu,2013; Nayak et al 2011; Damodaran,2013;Marjit et al,2007: Mondal et al,2018;Ghosal, 2013, 2014) . Therefore, in this paper we try to develop the indices of exclusiveness for all the major 16 states of India and then to relate the indices with the inequality and growth across the states over the period through the use of dynamic panel regression technique. We develop the exclusiveness Index by considering the social and economic parameters like proportions of populations deprived of having descent or dignified standard of living, educations, health facilities, employment and access to organized financial sector, social insecurity etc. The exclusiveness index is a composite index which will be the weighted AM of the dimension indices of the all the parameters considered above such that the indexes will be constructed by following the UNDP method of construction of human development index. Our study actually proceeds to substantiate the following two hypotheses:

(i)Growth without redistributive justice seems to have strengthened the exclusion process across the major states of India over time.

(ii) the persistence increasing inequality seems to have strengthened the exclusion process across the major states of India since the inception of the process of liberalization.

The rest of this paper is structured as follows. Section –II presents the methodology of construction of dimension indexes and composite exclusiveness indexes (EXI); Section -III presents the estimates of the dimension and composite indexes for the 16 states of India and analyses the exclusion indices across the states; Section IV estimates the relationship between the exclusion indexes and the growth rates, inequality across states and time in terms of dynamic panel regression GMM technique; and finally section -V concludes the paper..

## Section –II: DATA AND METHODOLOGY

To develop the indexes of exclusion we have relied mostly on the secondary data which are available from the various reports of the rounds of survey of National Sample Survey Organisation (NSSO) on consumption expenditure, employment and unemployment, aspects of farming in India; Reserve Bank of India on line data base, Hand books of statistics ; Economic and Political Weekly Research Foundation data base; Central Statistical Organization, Statistical Abstracts of India, various Census reports ; and CMIE data base. We have also used data base of Indiastat.com. Some of the parameters of exclusion indexes (like vulnerability indexes across states) are computed from the unit level data of NSSO data base. Since the time series data on all the parameters excepting Net State Domestic Product (NSDP), per-capita NSDP (PCNSDP), unemployment rate , life expectancy are not directly available and sometimes quinquennially available, we have used interpolation and extrapolation method and also sometimes the computation of compound rate of change of the variables to arrive at the longitudinal data base of the parameters considered for the construction of exclusion index.

Our composite exclusion index (CEI)<sub>it</sub> consists of six exclusion indexes (i.e. dimension indexes) :viz (a) exclusion from decent/dignified standard of living index (EDSI)<sub>it</sub> ; education exclusion index (EEI)<sub>it</sub>; Health Exclusion Index (HEI)<sub>it</sub>; Social Insecurity Index (SII)<sub>it</sub> ; Vulnerability Index (VI)<sub>it</sub> and Financial Exclusion Index (FEI)<sub>it</sub> ( Here, i= 1,2,.....,16 states and t= 1990 to 2016). While computing the composite indexes we have taken the weighted AM of all the dimension indexes such that we assign higher weight (0.40) to the most important component of composite index i.e. (EDSI)<sub>it</sub> ; equal weights of 0.20 to each of (EEI)<sub>it</sub> and (HEI)<sub>it</sub> respectively; equal weights of 0.05 to each of (SII)<sub>it</sub> and (VI)<sub>it</sub> and finally a weight of 0.10 to the component (FEI)<sub>it</sub> . It seems that the arbitrarily given weightage to the dimension indexes carries some relevance to the contemporary Indian macro-economic situation. Having said this, composite index becomes:

$$(CEI)_{it} = 0.4 (EDSI)_{it} + 0.2 (EEI)_{it} + 0.2 (HEI)_{it} + 0.05 (SII)_{it} + 0.05 (VI)_{it} + 0.1 (FEI)_{it}$$

Now we explain the methods of computation of each of the dimension indexes as follows

The EDSI component of dimension index is constructed by using the state specific rural-urban combined poverty lines at constant prices which are adjusted with commodities provided by PDS for the years 1987-88,1993-94,1999-2000,2004-05 and 2011-12 ( Himanshu, 2007,2013) and then used the interpolation for computing the poverty lines for the intermediate years and then computed the annual compound rate of change of the poverty line to arrive at the time series of the poverty lines across the states. In the similar manner we have computed the MPCE series across the states. Having done so, we proceed to compute the poverty gap by taking the differences between the state specific MPCE series and the poverty line series. Then we have used the UNDP method of computation of dimension index i.e (Actual Value- Minimum value)/

(Maximum value- Minimum value). Here the maximum value of MPCE that we have used is the average MPCE of top 5% of the people ( i.e. Rs 6256.24) such that it is assumed that this level of monthly per-capita consumption expenditure is sufficient to maintain decent standard level of living in a country like ours. On the other hand the minimum value of the gap from the decent level of living is assumed to be zero so that any deviation from this maximum value from the exclusion level i.e. the series of poverty gap in our study will indicate the exclusion of the people from the decent level of living. It is worth mentioning that the value of this exclusion index ranges from 0 to 1 i.e. the scale of exclusion in respect of decent level of living across the states over the period of our study lies on the scale 0 to 1. The smaller the value of the index for a particular year for any state will indicate the lower level of exclusion of the people of the state from the decent level of living and vice versa. The value of indexes across the states over time is given in **Appendix table-1**.

On the other hand, for the construction of the education exclusion index (EEI) we have used literacy rates across states and time as proxy of attainment of minimum education level as there is lack of longitudinal data on mean years of schooling and expected years of schooling across the major 16 states of India. We then computed the dimension index of educational achievement of the states by using the same UNDP method as stated above such that the maximum value has been used as 100% and the minimum value is the lowest minimum value across the states over the period of our study. After computing the longitudinal dimension indexes representing the educational attainment level of the states we have deducted the same from the value 1 so as to arrive at the dimension indexes of exclusion of the people of the states from the education. Here also the value of dimension indexes ranges from 0 to 1 such that higher value of the index of any state for any point of time indicates the higher level of exclusion of the people of the states from the educational attainment and vice versa ( see **Appendix table-1**). Further, we have computed health exclusion index (HEI) by considering the parameter life expectancy of the people across the states because of the lack of the availability of the longitudinal data on other parameters of health, albeit the data on infant mortality rates are available in scattered form. In this case, we have again applied the UNDP method ( as stated above) for the computation of the dimension index of health assuming that higher life expectancy of the people is the proxy of good health. Here, we have used the maximum life expectancy as 80 years and minimum life expectancy as 20 years as per UNDP method for the construction of human development indexes across the countries of the globe since 2012. After computation of series of dimension indexes for health across the states we have deducted the same series from the value one such that the resultant series indicate the index for the exclusion of the people of the states from good health. Here also the value of indexes ranges from 0 to 1 in the exclusion scale. Any value on the scale for any state for any particular year indicates the relative position of the state in respect of failure to attain the good health for its people. The dimension index of health exclusion series are also given in **appendix table-1**.

In the similar manner we have formed the social insecurity index (SII) by assuming that the proportions of working age people remaining unemployed across the states over time are mostly insecured both economically and socially. So, we have used unemployment rate as a proxy of insecurity of the working age population across the states. Obviously, there are other kinds of social and political insecurities. We could not incorporate those parameters because of lack of data. We have computed SII of the states for the period from 1990 to 2016 by using same methodology of UNDP such that the highest value of the series of unemployment rates across the states has been used as the maximum value and the minimum value assigned is zero indicating the full employment situation. Therefore this series of dimension index that we have computed is used as a surrogate of socio-economic insecurity of the population across the states over the period. Here also the value of dimension indexes ranges from zero to one in the insecurity scale such that the relative position of the states on the scale at any point of time indicates its position in respect of socio-economic insecurity. So, higher the value a state attains at a particular point of time on this scale indicates higher level of insecurity position of the people of the state at that point of time and vice versa. The dimension index of social insecurity series are given in **appendix table-1**. On the other hand, we have computed the vulnerability index by using the unit level NSSO data for its different rounds up to 2011-12 ( 68<sup>th</sup> round) on the monthly per-capita consumption expenditure on different items of food basket and non-food basket. We assume that the proportion of households spending 40% and more of their total expenditure on food on the total cereals are vulnerable. It is well accepted that the major source of calories as well as nutrition for the poorest of the poor people is the rice, wheat, pulses and other cereals. It is also evident from the various rounds of quinquennial surveys of NSSO on the level and pattern of consumption across all the states of India that bottom 40% of the populations expends more than 50% of their MPCE on the food including cereals, albeit, a diminishing trend in this respect is observed. In fact, the implementation of the target group public distribution system ( PDS) for in-kind transfer of food to the disadvantage group of people, the implementation of the Food Security Act. 1913 and the introduction of the Mid-day meal scheme ( MDM) for the school students seem to have surely produce positive impact on the vulnerability of people as well as the poverty afflicted people i.e. on the reduction of the both. We have formed the dimension index of vulnerability by treating maximum value of proportion of people vulnerable as the highest value of proportion of vulnerable population in the series across the states that we have computed from the unit level data and the minimum value as zero. In this case also the scale of vulnerability index ranges from zero to one such that for any state having any value at a particular year on the scale indicate the relative position of the people of the state in respect of the degree of the vulnerability ( **see appendix table-1**). Higher the value of index of vulnerability of a state for a particular year the higher will be the degree of vulnerability of the people of the state and vice versa.. It is worth mentioning that after initial calculation of proportion of households vulnerable across the states over time we have computed the proportion of people being vulnerable by our vulnerability criteria by using data on the average household size in each state of all the MPCE classes across time.



However, our financial exclusion index consists of three different dimension indexes for three parameters of banking operations of the organized financial sector ( scheduled commercial banks) across the states over time, namely, (a) the total amount of credit provided by the scheduled commercial banks to each state over time, (b) the total amount of deposits in the scheduled commercial banks in each states over the period and finally, (c) the number of bank branches in each state over time . The three dimension indexes for these three parameters are computed by following the same UNDP method. It is worth mentioning that the maximum and minimum values of each of the three series across states and over the period are treated as maximum and minimum values of the dimension indexes for each of the parameters so as to capture the level of financial inclusion of the people of the states over time. After computation of dimension indexes for the three parameters we have computed the series of composite financial inclusion index by taking equally weighted AM of the three dimension index series. Now to compute the financial exclusion index we have deducted the series of composite inclusion index from the value one. In this case also the value of FEI ranges from zero to one on the scale and therefore any state assuming a particular value of FEI on this scale at a particular point of time will indicates its relative position in respect of financial exclusion. So, higher the value a state attains on the scale the higher will be its degree of financial exclusion and vice versa (see **appendix table-2**). The degree of financial exclusion has also become evident from reports of the All India Debt and Investment Survey, the computation of which is given in **table-2**.

After computing the six individual dimension indexes for the 16 major states for the period from 1990 to 2016, we have computed the composite exclusion indexes(CEI) for the states by using the differential weighted AM of the six dimension indexes. The longitudinal series of the CEI is given in the Appendix table -3. We then computed the annual growth rates of the real PCNSDP across the states over the period of our study. Since the time series data on the data on the gini inequality are not available we have used the quinquennial gini inequality coefficients of consumption expenditure computed from the unit level data for the years from 1987-88 to 2011-12 from the paper published in the NSSO Journal, Sarvekshena(Mondal et al,2018) and the apply the method of interpolation for finding out the values of the gini for the intermediate years and finally we compute the compound rate of change of the values of the gini to arrive at the series of gini inequality coefficients across the states over time. Eventually to estimate the dynamics of the heterogeneity of the cross state and cross time composite exclusion indexes and also to estimate the impact of the dynamics of the cross state variations of the inequality and the growth rates of real PCGDP on the variations of the exclusion indexes we have regressed (CEI) on inequality and growth rates of PCGDP by using the dynamic panel regression technique with Generalised Method of Moments (GMM), the econometric specification of the same is given below.

## Econometric Specification

Since the LSDV estimator is constituent for the static model irrespective of whether the effects are fixed or random, to estimate dynamic relation between the cross-state variations in the composite Exclusion Indexes (CEI henceforth) over time and also the degree of inequality and the growth of per capita net state domestic product(PCNSDPgr), we have used the dynamic panel regression with GMM estimators by following Arellano- Bond method. The simplest model introduced by Arellano and Bond (1991) which we use can be expressed as:

$$Y_{it} - Y_{it-1} = (\alpha-1) Y_{it-1} + \beta X_{it} + u_i + \varepsilon_{it} \quad (1)$$

Where,  $i = 1,2,3,\dots,16$  ( states of India)

$t = 1,2,\dots,T$  (time) i.e. from 1990 to 2016; .

Here,  $Y_{it}$  represents the dependent variable(CEI);  $X_{it}$  represents the vector of explanatory variables ( i.e. PCNSDPgr, and Inequality, (other than lag dependent variables) i.e  $X_{it}$  is a  $(K-1) \times 1$  vector of exogenous regressors ;  $u_i$  stands for unobserved country specific effect i.e. the fixed effect and  $\varepsilon_{it}$  is the conventional error term such that  $\varepsilon_{it} \sim N(0, \sigma^2)$  i.e. the random disturbance term.

We rewrite the eq(1) as

$$Y_{it} = \alpha Y_{it-1} + \beta X_{it} + u_i + \varepsilon_{it} \quad (2)$$

Now to eliminate the country specific effect ( $u_i$ ) we take the first difference of equation (2) such that we have the dynamic panel model with GMM estimator as

$$\Delta Y_{it} = \alpha \Delta Y_{it-1} + \beta \Delta X_{it} + \Delta \varepsilon_{it} \quad (3)$$

Now the fixed effect (i.e. country specific effect) is eliminated. By construction  $\Delta Y_{it-1}$  is correlated with  $\Delta \varepsilon_{it}$ . Now the use of instrument is required to deal with (1) the likely endogeneity of explanatory variables and (2) the problem that the new error term in eq-3 is correlated with the lagged dependent variable (by construction). Under the assumption that there is no serial correlation in  $\varepsilon_{it}$  and the explanatory variable  $X$  are weakly exogenous, the GMM dynamic panel estimator uses the following moment conditions

$$E[ Y_{it-s} (\varepsilon_{it} - \varepsilon_{it-1}) ] = 0 \quad \text{for } s \geq 2; t = 3,4,\dots,T \dots\dots\dots(4)$$

$$E[ X_{it-s} (\varepsilon_{it} - \varepsilon_{it-1}) ] = 0 \quad \text{for } s \geq 2; t = 3,4,\dots,T \dots\dots\dots(5)$$

Now it follows that if the regressors are strictly exogenous,  $\varepsilon_{it}$  can not affect  $X_{is}$  for any  $s$  or  $t$ . Again if regressors are pre-determined,  $\varepsilon_i$  may affect for  $X_{is}$  for  $s > t$ . Strict exogeneity rules out any feedback from the idiosyncratic shock at time  $t$  to a regressor at time  $s > t$ .

It is worth noting that the consistency of GMM estimators depends on the validity of the instrument which produces their impact on the dependent variable through the regressors. To deal with this issue we need the specification test. In our study we use the Sargan test of over identifying restrictions which actually tests the overall validity of the instruments by analyzing the sample analog of the moment conditions used in the estimation process.

### **SECTION III : ANALYSIS OF THE DIMENSION INDEXES AND THE COMPOSITE EXCLUSION INDICES**

As per as the dimension index of exclusion from decent levels of living is concerned we have stated in the previous section that we assumed that Rs. 6256.24 per capita per month is the yardstick of decent levels of living of the people across the states. In other words if any person can undertake this much of consumption expenditure per month then that person will be treated as a person enjoying decent level of living. Since the dimension index of exclusion from decent level of living assumes value zero to one in the exclusion scale the relative positions of the states at any particular point of time can be explained in terms of the values of the dimension index. The dimension indices that we have presented in the appendix table 1 give the values of indices every five years from 1990 to 2016. It is found that the positions of AP in respect of the exclusion of the people of the state from decent level of living has deteriorated gradually from value of 0.0203 in 1990 to 0.0363 in 2000 and again to 0.1165 in 2010 and further to 0.4097 in 2016. The same deteriorating trend are observed in case for Assam, Bihar, Gujrat, Haryana ( with highest value of index i.e. 0.6697 in 2016) followed by Himachal Pradesh, Kerela (0.3829 in 2016), Tamil Nadu, Rajasthan , Uttar Pradesh, West Bengal and Mahara Maharashtra sthra. Remarkably, in Haryana, Kerela, West Bengal , Gujarat, Bihar and Andhra Pradesh the rate of deterioration in respect of deprivation from decent level of living are found to be higher particularly since the beginning of the new millennium. Surprisingly, Odisha and Assam have recorded the lower level of deprivation of their people from the decent level of living. This seems to be the result of the lower level of gap between the respective poverty line series and MPCE series these states. Therefore, from the trend in the exclusion index of decent levels of living it is plausible to conclude that the relative positions of the state in the exclusion scale has declined during the post-reform period. In other words one can say that during the post reform period the people across most of the states have been increasingly deprived of the decent levels of living. However, the education exclusion index is concerned so far, it is found that almost all

the states have experienced steady rate of decline in respect of attainment of education level in varying degrees during the post reform period with some states like Kerala, Maharashtra, Himachal Pradesh, Gujarat achieving the lower level of exclusion in this respect. The various workfare programme of the Central and State Governments as well as the social consciousness of the people along with the different public interventions programme during the post reform period might have produced some positive results across the states to this end. On the other hand the other crucial ingredient of composite exclusion index is the health exclusion indexes in which we have assumed the life expectancy as a proxy of good health and we have already stated that the maximum and minimum life expectancy across the states are assumed to be 80 years and 20 years respectively. The values of the exclusion indices given in the appendix table one ranges from a minimum value of 0.08 in 2016 which was 0.13 in 1990 (CEI)<sub>it</sub> 90 in Kerala followed by Karnataka, Maharashtra, Punjab, TN, WB to a maximum value of 0.2588 for UP and 0.2534 for MP in 2016. The trend in the health exclusion index also reveals a steady declining trend in almost all the states in varying degrees during the post reform period. So, one can safely conclude that the proportion of people across the states having deprived of enjoying good health positions have gradually declined albeit, the total health expenditure as a % of GDP has been found to be 1.4% in 2014. So it seems that the increase in the growth rate of per-capita NSDP as well as the development of private, NGO and public health facilities have contributed to this decline. Moreover, in the era of rapid expansion of information technology, media the people across the states seem to have become much more health conscious.

On the other hand, the dimension indexes of social insecurity (DSI) is concerned so far the value ranges from lowest value of 0.13 for Gujarat to the highest value of 0.93 for Kerala in 2016. Surprisingly, the social insecurity index in Kerala has been found to be very high throughout the period ranging from 0.652 in 1990 to 0.93 in 2016. It is also interesting to note that the value of social insecurity index has been found to decline since 2010 for the states like Maharashtra (0.16 in 2016), Gujarat (0.13 in 2016), Himachal Pradesh (0.11, in 2016), Haryana (0.19 in 2016), Rajasthan (0.19 in 2016) and in some other states also in varying degrees. So, it is obvious that the social insecurity in these states have declined. Conversely it is found that in the states like Punjab, Odisha, West Bengal, Bihar, Assam, Andhra Pradesh the value of the insecurity indexes have increased in varying degrees during the period of liberalization. For the states West Bengal, Odisha and Bihar and Uttar Pradesh the figures of insecurity index have increased to 0.441, 0.37, 0.59 and 0.551 respectively in 2016. So, it is plausible to conclude that the socio-economic insecurity of the people in these states have increased during the post reform period. Astonishingly, the state Gujarat has been able to maintain a lowest minimum level of socio-economic insecurity through out the period such that the value of insecurity index ranges from 0.14 in 1990 to 0.051 in 2016.

Further, the time profile of vulnerability indices across the states at five years interval which are given **appendix table-1** clearly reveals a continuous declining trend over the period from 1990

to 2016 such that the lowest figure has been zero for the states Harayana and Punjab. However, for the states like West Bengal, Uttar Pradesh the values of the indices have declined from 0.77 and 0.83 in 1990 to 0.041 and 0.023 respectively in 2016. Therefore, it is plausible to conclude that in all the states under study the proportions of vulnerable population have declined during the period from 1990 to 2016. Obviously, this indicate the effective implementation of the PDS for food grains, the mid-day meal scheme and also the shifting of the preferences of the people to other foods across the states in varying degrees during the post liberalization period. The NSSO reports for various since 1993-04 also reveal clearly that there has been a rapid diversification in the pattern of consumption of foods. We have also examined this in a paper on globalization and diversification pattern in India ( Ghosal, 2014, 2014). Surprisingly, the time profile of financial exclusion indices is concerned so far we find that for almost all the states the values of the indexes remain very high, albeit, with a lower declining trend in varying degrees, throughout the period, ranging from the minimum value of 0.090 in 2016 for Maharashtra to a maximum value of 0.96 in Himachal Pradesh in 2016. It is also evident that for some states like Karnataka, Tamil Nadu, Uttar Pradesh the rates of decline are found to be much larger than that in the other states such that, the values of the FEI for these states are found to be 0.63 for Karnataka, 0.60 for Tamil Nadu and 0.50 for Uttar Pradesh in 2016. Therefore this clearly indicates a wide diversity in the process of financial inclusion across the states such that even after the financial reforms the people across the states have not been benefited much from the banking operations of the organized financial sector. This is also substantiated by the role of the institutional agencies in providing the credit to the rural and urban households across the states for the period from 1991 to 2012. , the data on which are given in table-1 below.

**Table-I: Percentage Share of the Institutional Agencies in the Outstanding Cash Debt of Rural and Urban Households for Select States of India.**

States	Rural					Urban			
	1971	1981	91	2002	2012	1981	91	2002	2012
AP	14	41	34	27	42	26	53	60	69
Assam	35	31	66	58	72	77	97	83	89
Bihar	11	47	73	37	22	61	67	65	71
Guj	47	70	75	67	64	56	59	74	92
Har	26	76	73	50	52	66	81	56	94
Kar	30	78	78	67	50	54	85	83	73
Ker	44	79	92	81	78	77	75	83	89
MP	32	66	73	59	52	72	70	84	86
MAHA	67	86	82	85	73	65	78	91	96
ODI	30	81	80	74	57	83	83	93	96
Pun	36	74	79	56	64	61	59	76	81
Raj	9	41	40	34	31	47	78	52	59
TN	22	44	58	47	62	56	71	59	78
UP	23	55	69	56	57	59	65	58	90
WB	31	66	82	65	51	55	74	75	87
All India	29	61	64	57	56	60	72	75	85

Source : RBI, All India Debt and Investment Survey Report

The table gives an overview of the percentage share of institutional agencies in the outstanding cash debt of rural and urban households across the states. It is evident from the table that while for rural sector this share has declined from 64% in 1991 to 56% in 2012, conversely the same for the urban sector has increased from 72% to 85%. Surprisingly, in almost all the states excepting Tamil Nadu, Andhra Pradesh, Assam the percentage shares of institutional agencies in total outstanding cash debt in rural areas have declined during the post reform period which, in turn, clearly indicate that the role of unorganized sector in providing credit has increased tremendously since 1991 thereby leading to strengthening the financial exclusion process instead of inclusion. So, one can plausibly conclude that the process of financial exclusion has been much stronger in rural areas as compared to that in urban areas across the states since liberalization. Though our financial exclusion index is a composite index of three dimension indexes for total deposit, total credit and number of bank branches across the states, the financial exclusion indices also reveal the persistence of high degree of financial exclusion at the aggregate level across the states during the post reform period, the values of the three dimension indexes across the states are given in **appendix table-2**.

Finally, the composite exclusion index, which is the weighted AM of the six dimension indices, is concerned so far, the appendix table-1 presents the time profile of the indices across the states at five years interval for the period under consideration. It is found that most of the states like Rajasthan, Odisha, UP, Maharashtra, MP, Karnataka, Himachal Pradesh, Gujarat, Assam have experienced a gradual downfall in their values of exclusion index, on the exclusion scale zero to one, over the period. So, it clearly indicates that for these states the growth has become relatively less exclusive or obversely more inclusive. However, it is surprising to note that for the states like west Bengal, Rajasthan, Odisha, MP, Kerala, Himachal Pradesh, Harayana, Bihar and to some extent Assam, the declining trend in their relative position on the exclusion scale has been reversed since the beginning of this new millennium. It seems to be due to the tremendous increase in the financial exclusion indices and the increase in the value of exclusion indices for decent level of living together more than off setting the improvement in the vulnerability indices, health and education indices thereby resulting into increasing trend in the overall exclusions of the people since the beginning of the new millennium.

The summary statistics on all the indices including their degree of variability across states and time are given in table-2 from which it is discernable that the minimum value of financial exclusion has been -7.25 and the maximum value is one with an average value of 0.163 and standard deviation 1.27 indicating a wide divergence both across time and states in the exclusion process during the post liberalization period. This is also strengthened by the very high value of CV (779.89%) which definitely indicates very high degree of heterogeneity in the financial inclusion process. On the other hand, the average values of the health and education indices are found to be 0.23 and 0.35 respectively with the values of CV remaining moderate i.e. 31.64% and 37.37% respectively. Therefore the degree of variability in respect of exclusion of the people

across the states from health and minimum level of education can be said to be moderate across the states over time. However, the average value of the social insecurity index across the states over time is found to be 0.26 with relatively high level of degree of variability across the states, the value of CV being 69.01%. However, if we consider the exclusion from decent level of living in terms of DEI the difference between maximum and minimum values are found to be very high along with a very high CV (106.16%). Obviously, it follows that the cross state variation in respect of the deprivation of people from decent level of living is very high during the post-reform period. The similar is the result for vulnerability index with a very high value of CV (131.03%) thereby indicating high degree of disparity in respect of the persistence of vulnerable population as per our criterion across the states. On the whole, the cross state and cross time variability of the composite exclusion indices measured by CV is also found to be very high, the value of CV being 202.53%. Interestingly, it is clear from the statistics that the high degree of variability in the FEI, the DEI, vulnerability index (VI) together more than off sets the lower degree of exclusion in respect of health, education and social security so that the variability in CEI is found to be very high. So, one can plausibly conclude that the high growth trajectory in India has not been inclusive at the desired level since liberalization.

**Table- 2: Summary Statistics of the Dimension Indexes for Exclusion and Composite Exclusion Index**

<b>Variable</b>	<b>Obs</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>	<b>Coeff. Of variation (cv)</b>
<b>Financial exclusion</b>	<b>432</b>	<b>.1631623</b>	<b>1.27249</b>	<b>-7.24925</b>	<b>1</b>	<b>779.89%</b>
<b>Health Exclusion Index</b>	<b>432</b>	<b>.2320087</b>	<b>.0733998</b>	<b>.0799657</b>	<b>.425</b>	<b>31.64%</b>
<b>Education Exclusion Index</b>	<b>432</b>	<b>.3526123</b>	<b>.1317815</b>	<b>.06</b>	<b>1</b>	<b>37.37 %</b>
<b>Social Insecurity Index</b>	<b>432</b>	<b>.2611229</b>	<b>.1802179</b>	<b>.0423729</b>	<b>1</b>	<b>69.01%</b>
<b>Dimension Index for exclusion</b>						
<b>from decent level of living</b>	<b>432</b>	<b>.0886251</b>	<b>.0940831</b>	<b>.0047127</b>	<b>.6697383</b>	<b>106.16%</b>
<b>Vulnerability Index</b>	<b>432</b>	<b>1.248149</b>	<b>1.635398</b>	<b>0</b>	<b>6.896182</b>	<b>131.03%</b>
<b>Composite exclusion Index</b>	<b>432</b>	<b>.0636311</b>	<b>.1288717</b>	<b>-.6980508</b>	<b>.1813392</b>	<b>202.53</b>

**.Source : Author's Computation**

Now if we look at the values of the statistic of the major macro parameters considered in our study then it is also evident that there is vast difference between the maximum and minimum value of PCNSDP and its growth, literacy rate, total credit provided by the scheduled commercial banks and deposit in the scheduled commercial banks, unemployment rates, poverty



gap, MPCE, inequality as well as vulnerability. Interestingly, the conspicuous gap are found in respect of bank branches, deposits and credit, MPCE, PCNSDP and its growth as well as poverty gap. Now, if we look at the values of the standard deviations measuring the degree of dispersion of the values of the parameters across the states and over time the highest degree of dispersion are found in case of PCNSDP (16065.22) followed by total bank branches (2530), total deposit (2602.54), total credit (2357.76), poverty gap (588.58) respectively. Further, the standard deviation of the growth rate of PCNSDP is also found to be moderately high (48.49) . On the whole we may conclude that the high degree of variability of these major parameters have resulted into the high degree of variability in the values of the composite indices across states and time on the exclusion scale zero to one.

Table -3: Summary Statistics of the Major Macro Parameters across 16 major States of India during 1990-2016

<u>Variables</u>	Obs	Mean	Std. Dev.	Min	Max
PCNSDP(Rs)	432	25373.31	16065.22	1544	79077.2
PCNSDP Growth	416	.1124067	.4848953	-.1748336	8.377577
Literacy Rate(%)	432	64.88898	12.81789	30.11	94
Total Credit by Com Bank (Rs Billion)	432	1019.694	2357.756	4	22442
Povertylines(Rs)	432	516.8249	243.5272	212.1854	1091.218
Unemployment Rate (%)	432	3.08125	2.126571	.5	11.8
MPCE(RS)	432	1071.285	798.3479	280.5	5257.067
Poverty gap (Rs)	432	554.5151	588.5774	29.48406	4190.043
Life Expectancy	432	66.07948	4.403991	54.5	75.20206
Total Bank Deposit( Rs billion)	432	1338.646	2602.54	12	21817
No scheduled Com. Bank	432	4444.243	2530.133	709	16264
inequality (Gini)	432	.3182282	.0513562	.218	.66111
Vulnerability (%)	432	1.248149	1.635398	0	6.896182

Source: Author's Computation

#### IV: Analysis of the results of Dynamic Panel Regression

Having seen that some of the states like Rajasthan, Odisha, UP, Maharashtra, MP, Karnataka, Himachal Pradesh, Gujarat, Assam have experienced a gradual downfall in their values of composite exclusion indices on the exclusion scale zero to one over the period which clearly indicates that for these states the growth has become relatively less exclusive or obversely more inclusive, we now analyze the results of panel regression . Further, it is also found that for some states the declining trend in their relative positions on the exclusion scale has been reversed since the beginning of the new millennium. The summary statistics on all the six dimension indexes and CEI across the states are also found to reveal high degree of variability especially for the FEI, DEI and Vulnerability Index as well as the CEI. Further, the statistic of macro-parameters across the states also reveals a high degree of variability of major parameters across the states during 1990 to 2016. Therefore, to estimate the dynamics of the heterogeneity of the cross state and cross time composite exclusion indexes and also to estimate the impact of the dynamics of the cross state variations of the inequality and the growth rates of real PCNSDP on the variations of the composite exclusion indexes we have regressed (CEI) on inequality and growth rates of PCNSDP by using the dynamic panel regression technique with Generalised Method of Moments (GMM) following Arellano and Bond method, so that we can account for the variability CEI and substantiate the two hypotheses that we have stated in section-1. The results of the dynamic panel regression are given in the **table-4** below. We have used the STATA 14.0 version of software. The value of Wald chi squared in the table is highly statistically significant, the robustness of which is established by p-value indicating the correct specification of the model used. It is also evident from the table that the lag value of composite index as an explanatory factor is highly significant, the robustness of which is established by the smallest p-value.. Further, it is discernable from the table that inequality and growth rate of per capita NSDP (  $mpcnsdpgr$ ) are significant such that the inequality is highly significant and  $pcnsdpgr$  is significant at 4% level of significance with their desired signs. The positive sign of the inequality coefficient clearly indicates that one unit increase in inequality will lead to 0.08 unit of increase in the degree of exclusion. Further, the negative sign of  $pcnsdpgr$  will lead to very small decline in the exclusion of the people across the states i.e. 0.002 unit per 1% increase in growth rate. Therefore, we can conclude that these two explanatory factors are both economically and statistically significant in explaining the dynamics of the cross state variations in the exclusion process during the post liberalization period. The robustness of the significance of these two explanatory factors is established by their corresponding p-values. Further, the value of Sargan test and its p-value in the table clearly indicate that there is overall validity of the instrument with lag in analyzing the sample analog of the moment conditions used in the estimation process. On the whole, our dynamic panel regression results clearly substantiate our hypotheses that the growth without redistributive justice has strengthened the exclusion process across the major states of India over time and the persistence of the increasing inequality with its high degree of variability has also contributed substantially the exclusion process across the

major states of India since the inception of the process of liberalization. So, one can plausibly conclude that the high growth trajectory in India has not been inclusive at the desired level since liberalization.

**Table-4 : Results of the Dynamic Panel Regression with GMM Estimation**

Number of instruments = 273                      Wald chi2(3) = 1726.52

Number of obs = 375                              Prob > chi2 = 0.0000

**Dependent Variable : Composite Exclusion Index (compexindex)**

compexindex	Coeff.	P>z
compexindex		
L1.	.9029296	0.000
pcnsdpgr	-.0023913	0.036
inequality	.0801401	0.000
_cons	-.0005755	.941

**Sargan test of overidentifying restrictions**

**H0: overidentifying restrictions are valid**

chi2(269) = 453.1151

Prob > chi2 = 0.0000

## V. Concluding Remarks

We develop a composite exclusion index which consists of six dimension indexes of exclusion of the people from decent levels of living, minimum level of education, health, socio-economic security, access to organized financial institutions and vulnerability index across the major 16 Indian states during the period from 1990 to 2016 on the basis of the secondary data available from different sources and the unit level data of NSSO and also account for the dynamics of variability of the composite exclusion indexes across the states. We find that that some of the states like Rajasthan, Odisha, UP, Maharashtra, MP, Karnataka, Himachal Pradesh, Gujarat, Assam have experienced a gradual downfall in their values of composite exclusion indices on the exclusion scale zero to one over the period which clearly indicates that for these states the growth has become relatively less exclusive. Further, it is also found that for some states the declining trend in their relative

positions on the exclusion scale has been reversed since the beginning of the new millennium. The summary statistics on all the six dimension indexes and CEI across the states are also found to reveal high degree of variability especially for the FEI, DEI and Vulnerability Index as well as the CEI. Further, the statistic of macro-parameters across the states also reveals a high degree of variability of major parameters across the states during 1990 to 2016. We also find from our dynamic panel results that the crucial explanatory factors viz; the inequality and the growth rates of per capita NSDP are both economically and statistically significant in explaining the dynamics of the cross state variations in the exclusion process during the post liberalization period. Further our dynamic panel regression results clearly substantiate our hypotheses that the growth without redistributive justice has strengthened the exclusion process across the major states of India over time and the persistence of the increasing inequality with its high degree of variability has also contributed substantially the exclusion process across the major states of India since the inception of the process of liberalization. Finally we conclude that the high growth trajectory in India has not been inclusive at the desired level since liberalization.

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**Appendix Table-1 : Dimension Indices and Composite Exclusion Indices across the States of India over the period from 1990 to 2016**

States	Year	Un Wt FEI	HEALTH EXC INDEX)	Edu Exc Index	Unep D I Soc INSQ	DI of ex from decent life	Vul Index	Comp. Ex Index
Andhra Pradesh	1990	0.913217	0.316667	0.6434	0.09322	0.020264	0.679588	0.330081126
	1995	0.904775	0.288333	0.51	0.101695	0.025165	0.495837	0.290086844
	2000	0.891926	0.25	0.46	0.118644	0.036271	0.358261	0.26954624
	2005	0.871237	0.236667	0.3953	0.305085	0.05463	0.260806	0.263663563
	2010	0.785555	0.18257	0.3953	0.288136	0.116486	0.022463	0.256253881
	2016	0.809463	0.18257	0.3298	0.364407	0.409664	0.001185	0.365565615
Assam	1990	0.989696	0.408333	0.4711	0.474576	0.008012	0.400052	0.321792331
	1995	0.987601	0.376667	0.26	0.440678	0.022889	0.20942	0.267753803
	2000	0.986686	0.346667	0.29	0.389831	0.030378	0.158486	0.265568842
	2005	0.984521	0.301667	0.3675	0.610169	0.024339	0.120018	0.278530381
	2010	0.973622	0.254541	0.3675	0.177966	0.045983	0.040878	0.251105776
	2016	0.946043	0.254541	0.2781	0.720339	0.180426	0.01123	0.309881226
Bihar	1990	0.912818	0.348333	0.6768	0.194915	0.006319	1	0.358581659
	1995	0.905529	0.325	0.57	0.186441	0.008937	0.797997	0.322349422
	2000	0.899653	0.263333	0.54	0.20339	0.016188	0.638456	0.299199234
	2005	0.929344	0.236667	0.53	0.542373	0.015655	0.511627	0.305229756
	2010	0.907005	0.192706	0.53	0.398305	0.012668	0.034488	0.261948723
	2016	0.828114	0.192706	0.382	0.59322	0.217443	0.001373	0.314459524
Gujarat	1990	0.939106	0.316667	0.5508	0.135593	0.008805	0.035058	0.279458354
	1995	0.9334	0.26	0.36	0.127119	0.02834	0.028052	0.236434705
	2000	0.924558	0.238333	0.31	0.067797	0.036875	0.022264	0.221375391
	2005	0.912175	0.22	0.3086	0.20339	0.068752	0.017678	0.235491657
	2010	0.860241	0.181596	0.3086	0.245763	0.160355	0.001124	0.260549438

	2016	0.718884	0.181596	0.2197	0.050847	0.257718	4.04E-05	0.257779278
Haryana	1990	0.987325	0.283333	0.6287	0.135593	0.023036	0.043359	0.2993011
	1995	0.984534	0.26	0.37	0.118644	0.049154	0.014254	0.250759717
	2000	0.979437	0.225	0.35	0.101695	0.06902	0.008643	0.246068728
	2005	0.970744	0.216667	0.3209	0.338983	0.099437	0.005247	0.261573936
	2010	0.936233	0.181171	0.3209	0.135593	0.144776	0.005247	0.258989945
	2016	0.852733	0.181171	0.2445	0.194915	0.669738	0	0.448048645
Himachal Pradesh	1990	1	0.261667	1	0.059322	0.011422	0.029058	0.361321321
	1995	0.99844	0.216667	0.29	0.076271	0.039889	0.016849	0.221788924
	2000	0.997401	0.175	0.25	0.135593	0.083203	0.009286	0.225265121
	2005	0.995594	0.166667	0.2352	0.322034	0.080252	0.005125	0.228391336
	2010	0.987837	0.13341	0.2352	0.118644	0.108508	0.000515	0.221866768
	2016	0.969704	0.13341	0.172	0.194915	0.231047	3.28E-05	0.260218544
Karnataka	1990	0.919931	0.296667	0.5379	0.118644	0.007592	0.276338	0.281692455
	1995	0.913569	0.258333	0.41	0.101695	0.023231	0.183781	0.248589786
	2000	0.900379	0.231667	0.37	0.084746	0.045945	0.107572	0.23836503
	2005	0.877572	0.213333	0.3953	0.237288	0.050139	0.063036	0.244555689
	2010	0.803355	0.183504	0.3953	0.118644	0.122567	0.007641	0.251437465
	2016	0.629949	0.183504	0.2463	0.161017	0.236282	0.000609	0.251549702
Kerala	1990	0.951545	0.125	0.2115	0.652542	0.025787	0.069357	0.208864072
	1995	0.94481	0.14	0.09	0.661017	0.057517	0.048406	0.198959096
	2000	0.935965	0.106667	0.09	0.728814	0.093019	0.033061	0.208231282
	2005	0.921934	0.096667	0.0914	0.932203	0.111059	0.022599	0.221970524
	2010	0.883848	0.079966	0.0914	0.271186	0.254262	0.001636	0.238003864
	2016	0.79072	0.079966	0.06	0.932203	0.38285	7.03E-05	0.306818821
Madhya Pradesh	1990	0.920492	0.425	0.6137	0.110169	0.009875	0.625469	0.340520893



	1995	0.916168	0.381667	0.52	0.101695	0.021501	0.451137	0.308192052
	2000	0.910694	0.338333	0.44	0.09322	0.027421	0.319665	0.278348596
	2005	0.927918	0.293333	0.3626	0.211864	0.042515	0.226682	0.262911751
	2010	0.895227	0.253995	0.3626	0.245763	0.072368	0.057377	0.25694578
	2016	0.81351	0.253995	0.3068	0.245763	0.156945	0.011055	0.269128837
<b>Maharashtra</b>	1990	0.885124	0.261667	0.4276	0.161017	0.011277	0.961774	0.287015957
	1995	0.867466	0.235	0.27	0.161017	0.031571	0.471437	0.231997901
	2000	0.835316	0.2	0.26	0.245763	0.042924	0.21087	0.215532684
	2005	0.759365	0.168333	0.2312	0.305085	0.060299	0.094493	0.19994161
	2010	0.505276	0.132947	0.2312	0.228814	0.16585	0.004447	0.201359961
	2016	0.090132	0.132947	0.1766	0.161017	0.243724	0.000114	0.176468628
<b>Odisha</b>	1990	0.970913	0.4	0.6638	0.177966	0.008485	0.437245	0.344005975
	1995	0.967501	0.361667	0.46	0.186441	0.01436	0.39279	0.295788818
	2000	0.964556	0.32	0.43	0.220339	0.026559	0.352199	0.285706234
	2005	0.959539	0.283333	0.3692	0.508475	0.013958	0.315879	0.273261307
	2010	0.934554	0.218811	0.3692	0.144068	0.015573	0.114589	0.230219388
	2016	0.872901	0.218811	0.2711	0.372881	0.098882	0.033987	0.245168425
<b>Punjab</b>	1990	0.96704	0.216667	0.5663	0.161017	0.028619	0.003928	0.272992224
	1995	0.962635	0.225	0.38	0.161017	0.056474	0.002633	0.248035462
	2000	0.95266	0.186667	0.32	0.177966	0.06493	0.001535	0.231546427
	2005	0.941259	0.178333	0.3035	0.423729	0.100549	0.000896	0.251943298
	2010	0.903878	0.132031	0.3035	0.101695	0.358778	0.000896	0.326134562
	2016	0.808844	0.132031	0.2416	0.525424	0.266979	0	0.288673258
<b>Rajasthan</b>	1990	0.949027	0.35	0.6989	0.042373	0.014323	0.209353	0.322998273
	1995	0.945208	0.298333	0.57	0.042373	0.028513	0.106808	0.287051744
	2000	0.940714	0.258333	0.47	0.067797	0.045961	0.079773	0.265500986
	2005	0.934578	0.225	0.3959	0.245763	0.041897	0.059621	0.249665763

	2010	0.905709	0.20109	0.3959	0.627119	0.078799	0.007587	0.273223811
	2016	0.833256	0.20109	0.3389	0.194915	0.316412	0.000641	0.327666033
Tamilnadu	1990	0.917715	0.281667	0.4561	0.20339	0.013397	0.596541	0.284679975
	1995	0.908454	0.253333	0.35	0.20339	0.03766	0.305607	0.252025741
	2000	0.894601	0.213333	0.29	0.220339	0.048729	0.144864	0.227878373
	2005	0.87461	0.185	0.2655	0.29661	0.067463	0.068785	0.222816125
	2010	0.78538	0.149973	0.2655	0.220339	0.133023	0.009688	0.226342943
	2016	0.60459	0.149973	0.1991	0.29661	0.290704	0.000924	0.26143187
Uttar Pradesh	1990	0.831752	0.391667	0.6735	0.09322	0.011936	0.836697	0.34747871
	1995	0.819624	0.346667	0.51	0.09322	0.026285	0.729601	0.304950837
	2000	0.805118	0.32	0.45	0.118644	0.03971	0.634094	0.288032693
	2005	0.805503	0.288333	0.4373	0.279661	0.028635	0.551262	0.278676988
	2010	0.723153	0.258792	0.4373	0.076271	0.024441	0.131	0.231673536
	2016	0.504292	0.258792	0.3232	0.550847	0.219476	0.023401	0.283330572
West Bengal	1990	0.924435	0.3	0.5135	0.29661	0.014141	0.773528	0.314306806
	1995	0.914801	0.261667	0.34	0.29661	0.033828	0.63482	0.27191617
	2000	0.905286	0.213333	0.34	0.338983	0.036656	0.51783	0.258698315
	2005	0.889742	0.183333	0.3136	0.271186	0.051881	0.422585	0.243801727
	2010	0.832941	0.158531	0.3136	0.288136	0.103032	0.145518	0.240615616
	2016	0.708166	0.158531	0.2374	0.440678	0.345351	0.040549	0.312204713

Source: Author's Computation

**Appendix Table-2: Trends in Financial Exclusion Index ( FEI) across the states over the period from 1990 to 2016**

States	Year	Credit by commercial banks (billion rupees)	DI of Credit	Deposits ( Rs billions)	DI of Deposits	No of SCB Branches	DI of Bank Branches	Average of dimension indices	FEI
Andhra Pradesh	1990	75	0.0031643	94	0.0037606	4651	0.2534233	0.0867827	0.9132173
	1995	147	0.0063731	202	0.0087136	4918	0.2705882	0.095225	0.904775
	2000	298	0.0131028	464	0.0207292	5226	0.2903889	0.1080736	0.8919264
	2005	735	0.0325787	982	0.0444852	5519	0.3092253	0.1287631	0.8712369
	2010	2621	0.1166325	2493	0.1137812	7132	0.4129219	0.2144452	0.7855548
	2016	2229	0.0991621	2102	0.0958496	6567	0.3765992	0.190537	0.809463
Assam	1990	11	0.000312	19	0.000321	1180	0.0302797	0.0103042	0.9896958
	1995	15	0.0004902	40	0.0012841	1260	0.0354227	0.012399	0.987601
	2000	27	0.001025	84	0.003302	1263	0.0356156	0.0133142	0.9866858
	2005	63	0.0026295	178	0.0076129	1272	0.0361941	0.0154789	0.9845211
	2010	184	0.0080221	486	0.0217381	1477	0.0493732	0.0263778	0.9736222
	2016	432	0.0190748	1023	0.0463655	2209	0.096432	0.0539574	0.9460426
Bihar	1990	31	0.0012033	83	0.0032561	4708	0.2570878	0.0871824	0.9128176
	1995	50	0.0020501	153	0.0064664	4985	0.2748955	0.0944707	0.9055293
	2000	84	0.0035654	374	0.0166017	5078	0.2808743	0.1003471	0.8996529
	2005	114	0.0049024	410	0.0182527	3646	0.1888139	0.0706563	0.9293437
	2010	291	0.0127908	1004	0.0454942	4142	0.2207007	0.0929952	0.9070048
	2016	812	0.0360103	2430	0.110892	6445	0.368756	0.1718861	0.8281139
Gujarat	1990	58	0.0024066	102	0.0041275	3449	0.1761491	0.0608944	0.9391056
	1995	109	0.0046796	235	0.010227	3585	0.1848923	0.0665996	0.9334004
	2000	237	0.0103842	483	0.0216006	3732	0.1943427	0.0754425	0.9245575
	2005	454	0.0200553	977	0.0442559	3807	0.1991643	0.0878251	0.9121749
	2010	1405	0.0624387	2152	0.0981426	4733	0.258695	0.1397588	0.8602412
	2016	3907	0.173946	5184	0.2371933	7432	0.4322083	0.2811159	0.7188841
Haryana	1990	21	0.0007576	34	0.0010089	1273	0.0362584	0.012675	0.987325
	1995	34	0.001337	75	0.0028892	1365	0.0421729	0.0154664	0.9845336
	2000	72	0.0030306	171	0.0072919	1508	0.0513661	0.0205629	0.9794371
	2005	189	0.0082449	368	0.0163265	1692	0.0631951	0.0292555	0.9707445
	2010	691	0.0306177	1092	0.0495299	2438	0.111154	0.0637672	0.9362328
	2016	1765	0.0784829	2526	0.1152947	4567	0.2480231	0.1472669	0.8527331
Himachal Pradesh	1990	4	0	12	0	709	0	0	1
	1995	7	0.0001337	27	0.0006879	769	0.0038573	0.0015596	0.9984404
	2000	15	0.0004902	62	0.0022931	787	0.0050145	0.0025993	0.9974007
	2005	45	0.0018273	123	0.0050906	807	0.0063002	0.004406	0.995594
	2010	114	0.0049024	269	0.0117863	1017	0.0198007	0.0121631	0.9878369

	2016	218	0.0095374	663	0.0298555	1510	0.0514947	0.0302959	0.9697041
Karnataka	1990	69	0.0028969	84	0.003302	4349	0.2340084	0.0800691	0.9199309
	1995	130	0.0056155	197	0.0084843	4523	0.2451945	0.0864314	0.9135686
	2000	291	0.0127908	459	0.0204999	4840	0.2655738	0.0996215	0.9003785
	2005	795	0.0352527	1077	0.048842	5114	0.2831887	0.1224278	0.8775722
	2010	2248	0.1000089	2898	0.132355	6271	0.3575699	0.1966446	0.8033554
	2016	4881	0.2173545	6960	0.3186425	9640	0.5741562	0.3700511	0.6299489
Kerala	1990	41	0.001649	66	0.0024765	2906	0.1412408	0.0484554	0.9515446
	1995	77	0.0032534	173	0.0073836	3119	0.1549341	0.0551904	0.9448096
	2000	162	0.0070416	390	0.0173355	3318	0.1677274	0.0640348	0.9359652
	2005	377	0.0166236	691	0.0311396	3609	0.1864352	0.0780662	0.9219338
	2010	960	0.0426063	1521	0.0692043	4390	0.2366442	0.1161516	0.8838484
	2016	2273	0.1011231	3661	0.1673469	6299	0.35937	0.20928	0.79072
Madhya Pradesh	1990	44	0.0017827	66	0.0024765	4353	0.2342655	0.0795082	0.9204918
	1995	66	0.0027632	134	0.005595	4491	0.2431373	0.0838318	0.9161682
	2000	152	0.006596	309	0.0136207	4562	0.2477017	0.0893061	0.9106939
	2005	262	0.0114984	480	0.021463	3560	0.1832851	0.0720821	0.9279179
	2010	716	0.0317319	1182	0.0536574	4270	0.2289296	0.104773	0.895227
	2016	1729	0.0768785	2825	0.1290071	6209	0.3535841	0.1864899	0.8135101
Masharashtra	1990	228	0.0099831	328	0.0144921	5689	0.3201543	0.1148765	0.8851235
	1995	555	0.0245566	798	0.0360468	5951	0.3369977	0.1325337	0.8674663
	2000	1298	0.05767	1502	0.068333	6434	0.3680489	0.1646839	0.8353161
	2005	3628	0.1615117	3822	0.1747306	6708	0.3856638	0.2406354	0.7593646
	2010	9969	0.4441127	12020	0.5506994	8321	0.4893603	0.4947241	0.5052759
	2016	22442	1	21817	1	12058	0.7296046	0.9098682	0.0901318
Odisha	1990	21	0.0007576	24	0.0005503	2046	0.0859531	0.029087	0.970913
	1995	29	0.0011142	53	0.0018803	2179	0.0945034	0.0324993	0.9675007
	2000	53	0.0021838	127	0.005274	2247	0.098875	0.0354443	0.9645557
	2005	164	0.0071308	266	0.0116487	2305	0.1026037	0.040461	0.959539
	2010	448	0.0197879	824	0.0372392	2876	0.1393121	0.0654464	0.9345536
	2016	854	0.0378822	2092	0.095391	4567	0.2480231	0.1270988	0.8729012
Punjab	1990	38	0.0015153	87	0.0034396	2170	0.0939248	0.0329599	0.9670401
	1995	74	0.0031197	179	0.0076588	2285	0.1013179	0.0373655	0.9626345
	2000	152	0.006596	387	0.0171979	2548	0.1182257	0.0473398	0.9526602
	2005	329	0.0144844	658	0.0296262	2764	0.1321119	0.0587408	0.9412592
	2010	953	0.0422943	1332	0.0605366	3595	0.1855352	0.096122	0.903878
	2016	2024	0.0900258	2901	0.1324925	6168	0.3509482	0.1911555	0.8088445
Rajastan	1990	27	0.001025	13	4.586E-05	3071	0.1518483	0.0509731	0.9490269
	1995	51	0.0020947	32	0.0009172	3219	0.1613629	0.0547916	0.9452084
	2000	111	0.0047687	63	0.0023389	3365	0.170749	0.0592855	0.9407145
	2005	294	0.0129245	124	0.0051364	3481	0.1782064	0.0654224	0.9345776
	2010	943	0.0418486	315	0.0138959	4242	0.2271295	0.0942914	0.9057086
	2016	1875	0.0833853	556	0.0249484	6805	0.3918997	0.1667445	0.8332555
Tamilnadu	1990	109	0.0046796	113	0.004632	4404	0.2375442	0.0822852	0.9177148
	1995	224	0.0098048	258	0.0112818	4653	0.2535519	0.0915462	0.9084538

	2000	489	0.0216151	552	0.024765	4906	0.2698168	0.105399	0.894601
	2005	1109	0.0492468	1096	0.0497134	5021	0.2772099	0.12539	0.87461
	2010	3229	0.1437294	2836	0.1295116	6474	0.3706204	0.2146204	0.7853796
	2016	6820	0.3037704	6000	0.2746159	10164	0.6078431	0.3954098	0.6045902
<b>Uttar Pradesh</b>	1990	72	0.0030306	179	0.0076588	8394	0.4940534	0.1682476	0.8317524
	1995	127	0.0054818	361	0.0160055	8792	0.51964	0.1803758	0.8196242
	2000	233	0.0102059	827	0.0373767	9063	0.537062	0.1948816	0.8051184
	2005	513	0.0226847	1354	0.0615455	8475	0.4992607	0.194497	0.805503
	2010	1351	0.0600321	3123	0.1426737	10475	0.6278367	0.2768475	0.7231525
	2016	3309	0.1472948	7422	0.3398303	16264	1	0.4957084	0.5042916
<b>West Bengal</b>	1990	88	0.0037436	155	0.0065581	4075	0.2163934	0.0755651	0.9244349
	1995	151	0.0065514	281	0.0123366	4391	0.2367085	0.0851988	0.9148012
	2000	272	0.011944	598	0.0268746	4525	0.245323	0.0947139	0.9052861
	2005	586	0.0259381	1119	0.0507682	4661	0.2540662	0.1102575	0.8897425
	2010	1700	0.0755861	2761	0.126072	5368	0.2995178	0.1670586	0.8329414
	2016	3358	0.1494786	6099	0.2791562	7660	0.446866	0.2918336	0.7081664

Source: Author's Computation from RBI data bases

**Table- Annual Compound Growth Rates of PCNSDP across the States of India PCNSDP  
(at constant 2004-05 prices )**

	<b>ACGR of PCNSDP between 1994-95 to 2015-16</b>	<b>ACGR of PCNSDP Between 1994-95 to 2001- 02</b>	<b>ACGR of PCNSDP Between 2001-02 to 2015-16</b>
<b>AP</b>	<b>5.711786474</b>	<b>4.568357835</b>	<b>5.867255699</b>
<b>ASSAM</b>	<b>2.870260062</b>	<b>0.404693245</b>	<b>3.914010882</b>
<b>BIHAR</b>	<b>4.20596975</b>	<b>0.4016586</b>	<b>5.847695217</b>
<b>GUJARAT</b>	<b>6.723909992</b>	<b>1.533067026</b>	<b>8.907707302</b>
<b>HARYANA</b>	<b>5.737613178</b>	<b>3.439909538</b>	<b>6.479483396</b>
<b>HIMACHAL PRADESH</b>	<b>6.02074285</b>	<b>5.041193389</b>	<b>6.070163139</b>
<b>KARNATAKA</b>	<b>5.945358457</b>	<b>4.273538987</b>	<b>6.351263818</b>
<b>KERELA</b>	<b>5.894107167</b>	<b>3.682589319</b>	<b>6.579820936</b>
<b>MADHAY PRADESH</b>	<b>3.92899442</b>	<b>2.533642132</b>	<b>4.345674402</b>
<b>MAHARASTHRA</b>	<b>6.029632377</b>	<b>2.809807115</b>	<b>7.226286261</b>
<b>ODISHA</b>	<b>4.58983838</b>	<b>1.944350166</b>	<b>5.597895208</b>
<b>PUNJAB</b>	<b>3.705319191</b>	<b>2.329401959</b>	<b>4.128748747</b>
<b>RAJASTHAN</b>	<b>4.778560416</b>	<b>2.966617127</b>	<b>5.343970303</b>
<b>TAMIL NADU</b>	<b>6.446980325</b>	<b>3.182677962</b>	<b>7.634757239</b>
<b>UTTAR PRADESH</b>	<b>3.293515366</b>	<b>1.118073024</b>	<b>4.156244184</b>
<b>WEST BENGAL</b>	<b>5.352436129</b>	<b>5.188171567</b>	<b>5.043303714</b>

Source : Author's Computation from RBI online database

