

## **Development of Composite Index for Inclusive Economic Growth: An Indian Perspective**

**Paramasivan S. VELLALA \***

Institute of Technology, Nirma University, Ahmedabad, Gujarat, India, Research Scholar, NITIE, Mumbai, India. Email: [param.vellala@nirmauni.ac.in](mailto:param.vellala@nirmauni.ac.in).



**Mani K. MADALA**

National Institute of Industrial Engineering, NTIE, Mumbai, Maharashtra State, India.

**Utpal CHHATTOPADHYAY**

National Institute of Industrial Engineering, NTIE, Mumbai, Maharashtra State, India.

---

### **ABSTRACT**

Shifts in development economics unleash policy debate on the economic relationship between growth, inequality and poverty. The Great Depression brought Keynesian state intervention as an effective and ground-breaking shift in development economics to bail out many war ravaged economies which were collapsed due to excess dose of free market economics as advocated by Say's Market Law. The rise of monetarist in the late 1980s shifted development theory towards the trickle down proposition which emanated from the application of policy debate and deliberations culminated with the so called Washington Consensus. The failure of Washington Consensus and the pressure of International Monetary Fund and World Bank have forced many countries to address the problem of inequality and poverty through Pro Poor Growth which is evident from the global commitment to Millennium Development Goals. Subsequently the economic policy debates and discourse shifted from pro poor growth to inclusive growth. This paper investigates the extent of inclusive economic growth achieved in major Indian states in the mitigation of inequality and poverty. The paper constructs a composite index for inclusive economic growth in Indian context using principal component analysis using cross sectional data.

JEL Classification: D63; F43; M11; M12.

Keywords: Inclusive Growth; Productive Employment; Poverty Reduction; Inequality; Composite Index Major; Indian States.

\* *Corresponding author.*

### **1. INTRODUCTION**

Development economics witnessed different perspectives on economic growth over a period of time and is currently witnessing a paradigm shift with inclusive growth dominating the policy discourse. Inclusive growth is broad based high growth in which the poor not only benefits there from but also participate in the growth process. It not only creates new economic opportunities but also ensures the equal access to them by all, particularly the poor to the maximum possible extent. The policy initiatives of Government of India shifted the global policy debates from pro poor growth to inclusive growth. While Pro Poor Growth is only an outcome - that is the trickle down dimension of economic growth, Inclusive Growth is both an outcome and process. Inclusive Growth not only advocates the trickle-down effect of economic growth but also ensures that the poor and the marginalized people also participate in the process of new economic opportunities and share the benefits therefrom. Section 2 deals with existing studies and literature on inclusive economic growth and measurement and conceptual framework for inclusive economic growth in Indian context. section 3 deals with methodology, section 4 deals with development of composite index for inclusive economic growth in Indian context, and finally section 5 is conclusion.

### **2. LITERATURE REVIEW**

The usage of the term "inclusive" in the characterization of growth episodes can be traced back at least to the turn of the century. The contents of pro-poor growth as that one enables the poor to actively participate in it and benefit from the growth process.

Inclusive growth involved both poverty and inequality reduction. Inclusive growth as the growth process that increases the social opportunity function which depends upon the average opportunities available to the population and how these opportunities are shared among the population. Inclusive growth focuses on expanding the opportunities for all while targeting social protection interventions at chronically poor. The key elements in inclusive growth are employment and productivity, development in human capabilities and social safety nets and the targeted intervention. Economic growth as gross domestic product growth that leads to significant poverty reduction. Inclusive growth as growth which can reduce poverty and allow people to contribute to economic growth and benefit from the growth process. They pointed out that rapid pace of growth is unquestionable necessary for substantial poverty reduction but for growth to be sustainable in the long run should be broad based across the sectors and inclusive of the large part of the country's labor force. This definition of inclusive growth has a direct link between the micro and macro determinants of growth. Inclusive growth is disadvantage reducing growth. Growth Report (2010) notes that inclusiveness is a concept that encompass equity, equality of opportunity and protection in market and employment transitions. World Bank (2009) stated that inclusive growth can be achieved by focusing on expanding the regional scope of economic growth, expanding access to assets and thriving markets and expanding equity in the opportunities for next generation.

McKinley (2010) identifies that inclusive growth entails achieving sustainable growth that will create and expand economic opportunities and ensuring broader access to these opportunities so that members of society can participate in and benefit from growth. In reviewing the ADB literature Raumiyyar and Kanbur (2010) point out that while there is no agreed and common definition of inclusive growth or inclusive development, the term is understood to refer to "growth coupled with equal opportunities and consisting of economic, social and institutional dimensions. They further pointed out that inclusive growth is accompanied by lower income inequality so that the increment of income accrues disproportionately to those with lower incomes. Asian Development Bank (ADB, 2013) defines inclusive growth as economic growth that results in a wider access to sustainable socio economic opportunities for a broader number of people, regions or countries while protecting the vulnerable, all being done in an environment of fairness, equal justice and political plurality. Growth process is called distribution neutral if the growth incidence curve is perfectly flat in such a way that all percentiles grow at the same rate leaving inequality unchanged. The distributional change is pro poor if the redistribution reduces poverty sharply. Therefore the rate of pro poor growth is equal to the distributional correction multiplied by ordinary growth rate (Ravallion and Chen, 1997).

The paradigm shift to inclusive growth is evident from the Approach Papers of 11th Five Year Plan of Government of India (2007-12) which focused on faster and more inclusive growth and 12th Five Year Plan (2012-17) which focused on faster, sustainable and more inclusive growth. Inclusive growth is broad based high growth in which the poor not only benefits. Many policy initiatives like Mahatma Gandhi National Rural Employment Guarantee Act (2005), Mid-Meal Scheme, Sarva Sikhsha Abhiyan etc were targeted to generate productive employment and to eradicate poverty in India. These initiative were supplemented by a strong legal framework like Right to Information Act and a comprehensive data bank of Unique Identity Number to every Indian Citizen under the scheme called "Aadhar" under the brilliant leadership of Mr.Nandan Neilakani. Recently the new government also fostered inclusive growth by initiating - perhaps world's largest financial inclusion scheme "Jan Dhan Yojana" which has opened bank accounts to almost the entire population in India and facilitated easy access to micro credit making financial inclusion a reality.

It is evident from the literature review that so far there were two attempts in constructing composite index for measuring inclusive economic growth. They are discussed below.

1. Inclusive Growth Criteria and Indicators: An Inclusive Growth Index for Diagnosis of Country Progress: McKinley (2010) constructed this index covering the two dimensions of inclusive growth. (1) Achieving sustainable growth that create and expand economic opportunities and (2) ensuring broad access to these opportunities so that all the people can participate and benefit from them.

2. China's Inclusive Growth: Measurement and Evaluation: The inclusive growth index is prepared to measure the sustainability of economic growth, income poverty and equity, fair access to economic opportunities as well as social security. The authors made sincere attempt to evaluate the level of inclusive growth in China and determined the impact of specific factors on inclusive growth. The biggest lacuna in this index is that they relied on expert opinion on weightage scheme of the indicators. Since the weightage scheme was based on expert opinion the index did not adequately represented by proper scoring of the indicators.

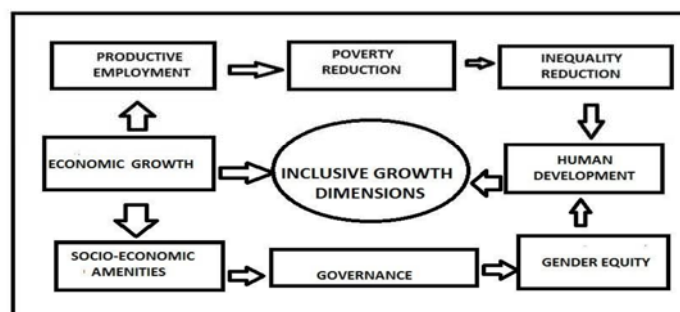
3. Report of Committee for Evolving a Composite Development Index for States (GOI, 2013): Apart from the above two composite indices which were attempted in measuring inclusive growth, this study also considered the Report prepared by the Ministry of Finance under the chairmanship of Shri Raghuram G Rajan which has prepared an underdevelopment index and mapped it to fund allocation to various states in India. However this index did not consider a very important dimension of development - governance and therefore could not capture accountability and transparency. The Report constructed the underdevelopment index by assigning weightage scheme both by principal component analysis (PCA) and by giving equal weightage to all the indicators. The Report found that the indices were highly correlated with a correlation coefficient of 0.99.

Comparative analysis of Development Indexes: Apart from the popular UNDP-HDI, there are few studies done by Asian Development Bank, the underdevelopment index developed by Raghuram Rajan, Ministry of Finance, Government of India. These studies were cross examined as follows.

**Table 1. Comparative Analysis of Conceptual Studies**

Dimension	UNDP-HDI 2010	Mckinley –ADB 2010	Kuznet – China – 2012	Raghuram Rajan GoI(2013)	Current Study
Economic	X	X	X	X	X
Amenities	-	X	X;	X	X
HDI	X	X	X	X	X
Gender	-	X	-	X	X
Equity					
Financial	-	-	-	X	X
Inclusion					
Sustainability	-	-	-	-	X
Governance	-	X	-	-	X

The current study emanates from the following research gap identifications. The studies so far did not offer a comprehensive theoretical framework for inclusive economic growth which is evident from the exiting literature and thus provide scope for investigation. There is no evidence from the existing studies for the measurement of inclusive economic growth though McKinley (2010) used composite index for inclusive economic growth for diagnosis of country progress with limited case studies. The scanning of existing literature on inclusive economic growth shows that the weightage scheme is either fixed arbitrarily or equally among various variables and indicators which need further investigation. Inclusive Economic Growth Analytical Framework focused on poverty reduction and employment generation within the business environment. However this framework could not capture all the dimensions of inclusive economic growth. The scanning of existing literature underlines many drivers of inclusive economic growth based on which the following typical inclusive economic growth framework had been constructed by Vellala et al (2014).



**Figure 1.**  
**Conceptual Framework**

The Conceptual Framework for Inclusive Economic Growth in Indian Context is presented in Figure 1.

The above conceptual framework exhibits the key drivers of inclusive growth in a country. First and foremost, faster and sustainable economic growth is pre requisite of inclusive growth. Perhaps this best explains why the emerging Economies like Brazil, China, India etc. focus more on the accelerated economic growth in the last couple of decades. Economic Growth should provide basic socio economic amenities in the form of food for all, health for all, education for all, electricity for all, access to all weather-good roads and safe drinking water. Government should achieve administrative efficiency and should guarantee gender equity so that the trickle-down effect of the growth will actually materialise. Good governance and gender equity will enhance the human capabilities. Followed by economic growth productive employment is the key driver of inclusive economic growth since jobless growth is as dangerous as stagnation. Productive employment can increase the labour productivity. Employment outcome is an important outcome of inclusiveness. Naturally employment should be capable of poverty reduction. Inclusive growth assumes significant since it alone can uproot the absolute poverty. Inclusive growth can substantially reduce the income inequality both vertical and horizontal. All these will enhance the quality of human capabilities.

The drivers to inclusive growth exhibited in the conceptual framework can be explained as follows.

1. Economic Growth: Sustainable and faster economic growth is pre requisites for achieving the goal of inclusive growth. While the Approach Paper to 11th Five Year Plan, Government of India (2007-12) focused on faster and more inclusive growth, the Approach Paper to 12th Five Year Plan (2012-17) focused on Faster, sustainable and more inclusive growth. However researchers normally face the problem of selecting the right indicator and therefore the choice of indicator of economic growth is very important.

2. Productive Employment: The concept of productive employment as a fundamental element of inclusive growth. The concern with the growth and distribution of employment growth. While many low- and middle-income countries have weathered the economic crisis since 2008 well, and economic growth rates have remained high or have recovered, many of the imbalances that caused the crisis and remain responsible for persistent deprivation continue to exist. At the core of this global challenge is a need to enhance populations and particularly poor and marginalized groups', access to productive opportunities, to find decent jobs, or to maintain and promote their small businesses. The nature of these challenges is different in each country and region. However, across these contexts it is important for research to move beyond the growth-redistribution dichotomy, and advance conceptual and empirical knowledge that identifies the conditions for inclusive growth.

3. Poverty Reduction: Growth to be inclusive needs to be pro poor. The Tendulkar Committee has moved over from a calorie determined poverty line to a food expenditure determined poverty line. The Report (GOI, 2009) has a concept of inclusive growth wherein the state does not take on itself such pro poor responsibilities but provides for a concept of income supplements for private expenditures for them.

4. Inequality Reduction: Growth to be inclusive needs to ensure income equality. Inclusive growth is that which is accompanied by declining income inequality (Raunier and Kanbur, 2010). Measures are needed to track the adverse distributional changes that affect not only the extremely and moderately poor, but also the disadvantaged non-poor (McKinley, 2010). Countries that have successfully reduced poverty but have witnessed increasing income inequality will need to design policies to expand job opportunities and access to social services and infrastructure for regions and populations that are left behind to achieve the goal of inclusive growth (Ifzal, 2007).

5. Human Development: The supply side of the inclusive growth dynamics needs to be addressed i.e. whether the working population possesses the human capabilities necessary to be productively employed to take advantage of available economic opportunities (McKinley, 2010). Access to health and education and other vital infrastructure such as safe drinking water and adequate sanitation decides the quality of human capital. Macro-Economic stability, human capital and structural changes are found to be the key determinants of inclusive growth in emerging world (Ifzal, 2007).

6. Gender Equity: Growth to be inclusive needs to ensure gender equity. Achieving greater gender equity is an important aspect of fostering greater inclusiveness of growth including enhancing human capabilities. (McKinley, 2010). Regardless of gender, ethnicity and religion people from all social sectors should be able to contribute to and benefit from economic development. Both Economic growth and equity are importance to advance the inclusive growth in an economy.

7. Basic Socio-Economic Infrastructure: Growth to be inclusive needs to develop economic infrastructure so that all sections of the society will have access to safe drinking water, electricity, housing, toilet, transport and financial

inclusion. Inclusive growth results in a wider access to sustainable socio economic opportunities for a broader number of people, regions or countries while protecting the vulnerable, all being done in an environment of fairness, equal justice and political plurality. Financial inclusion may be defined as the process of ensuring access to financial services and timely and adequate credit.

8. Governance: Governance deficit is considered as a crucial hindrance towards achieving inclusive growth (McKinley, 2010). Many developmental programmers were only outlay based, not outcome based. Therefore to be inclusive governance standards have to be lifted and huge elements of accountability and transparency in governance are indispensable. To implement inclusive policies successfully government effectiveness will have to be strengthened (ADB, 2013). Inclusive growth focuses on expanding the opportunities for all while targeting social protection interventions at chronically poor. Therefore social protection through social safety nets should be incorporated as an additional dimension of inclusive growth strategic framework (McKinley, 2010).

### 3. METHODOLOGY

Present study construct the inclusive growth composite index for 15 major Indian states which have been identified based on the following three criteria.

**Table 2. Identification of Major Indian States**

States	Geographical Area Lac Sq.Km.	% of Population to that of India	% of GSDP to India's GDP
Andhra Pradesh	2.75	7.00	7.65
Assam	0.78	2/58	1.61
Bihar	0.94	8.68	2.89
Gujarat	1.96	4.99	6.84
Haryana	0.44	2.09	3.70
Karnataka	1.92	5.05	5.49
Kerala	0.38	2.76	3.85
Madhya Pradesh	3.08	6.0	3.48
Maharashtra	3.08	9.29	14.04
Odisha	1.56	3.47	2.71
Punjab	0.50	2.29	3.36
Rajasthan	3.42	5.67	4.09
Tamil Nadu	1.36	5.96	6.88
Uttar Pradesh	2.41	16.49	8.35
West Bengal	0.89	7.55	7.18
<b>Total Share (%)</b>	<b>25.47 Lac sq.km.(77%)</b>	<b>89.77 %</b>	<b>82.12 %</b>

Selection of Variables and Sources of Data Set: This study considers a large number of socio economic variables and the data sources are as follows.

PCA aims to extract the maximum variance from a data set with each component. The first principal component is the linear combination of observed variables that maximally separate subjects by maximizing the variance of their component scores. The second component is computed from the residual correlations. It is the linear combination of observed variables that extract maximum variability. The subsequent components also extract maximum variability from the residual correlations and are independent from all other components (Tabachnick & Fidell, 2007). The extracted components represent most of the variance of the original data set and can be used in further analysis.

Factor Loading: After the components have been extracted the factor loadings of each of the variables on the components are calculated. The factor loadings are the correlation between the latent components and a variable. The aggregation of the scores of the components was done on the basis of weights assigned to the components, the weights being the proportion of variance explained by the component (Prabhu and Sarkar, 1992). The factor loading is multiplied by the weight of the component to get the individual score. The Composite Inclusive Growth Index Score for each state is derived by summing up the component scores for each dimension of the inclusive growth framework - Economic, Amenities, Financial and Gender Equity, Sustainability and Governance. Weights have been determined according to various dimensions of inclusive growth dynamics. All the dimensions have

been given equal weightages but within the dimension the weightage of different indicators are determined according to the Principal Component Analysis as described below.

**Table 3. Identification of Variables and Sources of Data Set**

Indicators	Dimension	Base Year-01-02	Current Year-11-12
Income – MPCE	<b>ECONOMIC</b>	2004-05 – NSSO 60 <sup>th</sup> Round	NSSO 68 <sup>th</sup> Round July 2011 to June 2012
Poverty		Planning Commission 2004-05	Planning Commission 2011-12
Employment		Census 2011	NSSO – 68 <sup>th</sup> Round
Inequalities(Gini Coefficient)/PerCapita Income		Planning commission	Planning Commission
Per Capita consumption Of Electricity	<b>AMENITIES</b>	Central Electricity Authority, Ministry of Power, GOI	Central Electricity Authority, Ministry of Power, GOI
Access to Drinking Water		Census 2011	Census-2011
Access to Toilet		Census 2011	Census-2011
Pucca Houses		Census 2011	Census-2011
Transport – Road Length per 100 Sq.km.		Economic Survey of Maharashtra – 2005-06	Economic Survey of Maharashtra – 2012-13
% of women in LWF	<b>GENDER EQUITY and Financial Inclusion</b>	Census 2011	Census-2011
% of Girls in School Ed		Census 2011	Census 2011
% of HH with banking		Census 2011	Census-2011
Literacy Rate	<b>Human Development</b>	Census 2011	Census-2011
Life Expectency		Census 2011	Census-2011
Health – IMR		SRS Bulletin 2005-06	SRS Bulletin Oct.2012
% of State Finance (Budget) to Social Sector	<b>GOVERNANCE</b>	State Finances: A Study of Budgets OF 2013-14, RBI	State Finances: A Study of Budgets of 2013-14, RBI
No. of man days of Employment		MGNREGA Report 2006-07	MGNREGA Report 2011-12
MGNREGA Wage		MGNREGA Report 2006-07	MGNREGA Report 2011-12
% of Women in participation of MGNREGA		MGNREGA Report 2006-07	MGNREGA Report 2011-12
Crime Rate	<b>Sustainability</b>	National Crime Records Bureau, Home Ministry, GoI-Report-2001	National Crime Records Bureau, Home Ministry, GoI-Report-2011
Air Quality		CPCB,GoI, 2004	CPCB,GoI, 2011

The weightage scheme using the Principal Component Analysis has been applied in the construction of the Composite Index for inclusive growth in this paper departing from the existing literature where the studies have constructed the composite index using either expert opinion or assigning weightage arbitrarily, thereby this paper is addressing an important literature gap.

#### 4. RESULTS AND DISCUSSION

Actual data is converted into z-score for each dimension which is multiplied by the concerned weight to get the value of each indicator which are aggregated to get the index of each dimension and the sum of score of all the dimensions have been taken as the aggregate score or composite score for a state. Composite Score for Economic Dimension and the ranking of the states: The score of individual economic indicators have been aggregated to arrive at the composite score of economic dimension for the year 2001 and the states have been ranked in Table 5.

**Table 4. The Weights assigned to indicators**

Indicators	Dimension	2001	2011
Income – MPCE	Economic	0.02	0.15
Poverty		0.34	0.24
Employment		0.21	0.20
Gini – Rural		0.22	0.20
Gini – Urban		0.21	0.21
		Total	100%
Per Capita consumption Of Electricity	Amenities	0.10	0.20
Access to Drinking Water		0.20	0.21
Access to Toilet		0.03	0.20
Pucca Houses		0.46	0.21
Transport – Road Length per 100 Sq.km.		0.21	0.18
		Total	100%
% of women in LWF	Gender Equity and Financial Inclusion	0.333	0.333
% of Girls in School Ed		0.333	0.333
% of HH with access to banking		0.333	0.333
		Total	100%
Literacy Rate	Human Development	0.37	0.36
Life Expectency		0.55	0.32
Health – IMR		0.08	0.32
		Total	100%
% of State Finance (Budget) to Social Sector	Governance	0.25	0.25
No. of man days of Employment		0.25	0.25
MGNREGA Wage		0.25	0.25
% of Women in participation of MGNREGA		0.25	0.25
		Total	100%
Crime Rate	Sustainability	0.50	0.50
Air Quality		0.50	0.50
		Total	100%

**Table 5. Composite Score of Economic Dimension**

Dimension Index - Economic	RANK	State
1.07	1	Andhra Pradesh
0.19	6	Assam
-0.34	12	Bihar
0.31	5	Gujarat
0.44	3	Haryana
0.31	5	Karnataka
-0.51	11	Kerala
-0.30	7	Madhya Pradesh
-0.47	10	Maharashtra
-0.43	9	Odisha
0.91	2	Punjab
0.43	4	Rajasthan
-0.51	11	Tamil Nadu
-0.79	13	Uttar Pradesh
-0.32	8	West Bengal

Even though Kerala's MPCE is very high and it has achieved considerable success in poverty reduction, it has created huge income inequality and failed to create sufficient employment opportunities and therefore badly ranked at 11. Among the toppers, AP is ranked first followed by Punjab and Haryana. The worst performers among the states are UP and Bihar with ranks of 13 and 12 respectively.

The score of individual amenities indicators have been aggregated to arrive at the composite score of amenities dimension and the states have been ranked as follows.

**Table 6. Composite Score for Amenities Dimension and Ranking**

<b>Dimension Index - Amenities</b>	<b>RANK</b>	<b>States</b>
0.01	<b>8</b>	Andhra Pradesh
-1.26	<b>14</b>	Assam
-0.49	<b>10</b>	Bihar
0.40	<b>4</b>	Gujarat
0.44	<b>3</b>	Haryana
0.12	<b>6</b>	Karnataka
0.52	<b>2</b>	Kerala
-0.62	<b>12</b>	Madhya Pradesh
0.20	<b>5</b>	Maharashtra
-0.83	<b>13</b>	Odisha
1.42	<b>1</b>	Punjab
-0.01	<b>9</b>	Rajasthan
0.40	<b>4</b>	Tamil Nadu
0.02	<b>7</b>	Uttar Pradesh
-0.30	<b>10</b>	West Bengal

Composite Score for Human Development Dimension and the ranking of the states: The score of individual human development indicators- literacy rate, infant mortality rate and life expectancy have been aggregated to arrive at the composite score of human development dimension of inclusive growth.

**Table 7. Human Development Dimension**

<b>Dimension Index -HD</b>	<b>RANK</b>	<b>States</b>
-0.29	<b>9</b>	Andhra Pradesh
-0.86	<b>13</b>	Assam
-1.16	<b>15</b>	Bihar
0.06	<b>8</b>	Gujarat
0.23	<b>7</b>	Haryana
0.30	<b>5</b>	Karnataka
2.42	<b>1</b>	Kerala
-0.97	<b>14</b>	Madhya Pradesh
0.75	<b>2</b>	Maharashtra
-0.81	<b>12</b>	Odisha
0.73	<b>3</b>	Punjab
-0.58	<b>11</b>	Rajasthan
0.31	<b>4</b>	Tamil Nadu
-0.39	<b>10</b>	Uttar Pradesh
0.26	<b>6</b>	West Bengal



In fact the human development indicators show the supply side of inclusive economic growth dynamics and the states have been ranked above.

**Table 8. Dimension Index – Gender Equity and Financial Inclusion**

<b>Dimension Index – GE/FI</b>	<b>RANK</b>	<b>States</b>
<b>0.11</b>	<b>8</b>	Andhra Pradesh
<b>-0.63</b>	<b>12</b>	Assam
<b>-0.58</b>	<b>11</b>	Bihar
<b>0.18</b>	<b>6</b>	Gujarat
<b>0.40</b>	<b>5</b>	Haryana
<b>0.53</b>	<b>3</b>	Karnataka
<b>0.54</b>	<b>2</b>	Kerala
<b>-0.13</b>	<b>10</b>	Madhya Pradesh
<b>1.08</b>	<b>1</b>	Maharashtra
<b>-0.67</b>	<b>13</b>	Odisha
<b>0.15</b>	<b>7</b>	Punjab
<b>0.05</b>	<b>9</b>	Rajasthan
<b>0.41</b>	<b>4</b>	Tamil Nadu
<b>-0.83</b>	<b>14</b>	Uttar Pradesh
<b>-0.63</b>	<b>12</b>	West Bengal

Based on the score of individual sustainability and legal dimension indicators –the states have been ranked as follows. The variables pertaining to air quality and crime rate have been clubbed since PCA cannot read only one variable i.e. either air quality or crime rate alone in assigning exclusive weights.

**Table 9. Sustainability Dimension**

<b>Dimension Index – Sus.</b>	<b>RANK</b>	<b>State</b>
0.66	<b>3</b>	Andhra Pradesh
0.54	<b>4</b>	Assam
-0.33	<b>11</b>	Bihar
-0.50	<b>12</b>	Gujarat
0.10	<b>7</b>	Haryana
-0.27	<b>9</b>	Karnataka
0.34	<b>6</b>	Kerala
-0.28	<b>10</b>	Madhya Pradesh
-0.77	<b>13</b>	Maharashtra
1.03	<b>1</b>	Odisha
1.00	<b>2</b>	Punjab
-0.80	<b>14</b>	Rajasthan
0.42	<b>5</b>	Tamil Nadu
-1.03	<b>15</b>	Uttar Pradesh
-0.19	<b>8</b>	West Bengal

The score of individual indicators of governance – the share of state budget to social sector, the MGNREGA wage payment, the MGNREGA actual man days employment and the MGNREGA women’s participation have been aggregated to get the dimension index value of governance and the states have been ranked as follows. Even Raghuram Rajan(Governemnt of India, 2013) did not consider the governance dimension while constructing the under-development index for consideration of grant-in-aid to the Indian states.

**Table 10. Governance Dimension**

<b>Dimension Index-Gov.</b>	<b>RANK</b>	<b>States</b>
-1.13	<b>14</b>	Andhra Pradesh
0.59	<b>3</b>	Assam
-0.42	<b>12</b>	Bihar
-0.05	<b>7</b>	Gujarat
-0.04	<b>6</b>	Haryana
0.19	<b>5</b>	Karnataka
-0.14	<b>8</b>	Kerala
0.76	<b>2</b>	Madhya Pradesh
-0.58	<b>13</b>	Maharashtra
0.38	<b>4</b>	Odisha
-0.29	<b>9</b>	Punjab
1.31	<b>1</b>	Rajasthan
0.19	<b>5</b>	Tamil Nadu
-0.39	<b>11</b>	Uttar Pradesh
-0.38	<b>10</b>	West Bengal

After aggregating all the dimensions of inclusive growth – Economic, Amenities, Human Development, Gender Equity and Financial Inclusion, Sustainability and Governance the inclusive growth composite index for the year 2001 is calculated as follows.

**Table 11. Construction of Inclusive Growth Composite Index**

<b>States</b>	<b>Economic</b>	<b>Amenities</b>	<b>HD</b>	<b>GEFI</b>	<b>SUS</b>	<b>GOV</b>	<b>Composite Score</b>	<b>RANK</b>
AP	1.07	0.01	-0.29	0.11	0.66	-1.13	<b>0.43</b>	<b>6</b>
Assam	0.19	-1.26	-0.86	-0.63	0.54	0.59	<b>-1.43</b>	<b>10</b>
Bihar	-0.34	-0.49	-1.16	-0.58	-0.33	-0.42	<b>-3.32</b>	<b>13</b>
Gujarat	0.31	0.4	0.06	0.18	-0.5	-0.05	<b>0.40</b>	<b>7</b>
Haryana	0.44	0.44	0.23	0.4	0.1	-0.04	<b>1.57</b>	<b>3</b>
Karnataka	0.31	0.12	0.3	0.53	-0.27	0.19	<b>1.18</b>	<b>5</b>
Kerala	-0.51	0.52	2.42	0.54	0.34	-0.14	<b>3.17</b>	<b>2</b>
MP	-0.30	-0.62	-0.97	-0.13	-0.28	0.76	<b>-1.54</b>	<b>11</b>
Maharashtra	-0.47	0.2	0.75	1.08	-0.77	-0.58	<b>0.21</b>	<b>8</b>
Odisha	-0.43	-0.83	-0.81	-0.67	1.03	0.38	<b>-1.33</b>	<b>9</b>
Punjab	0.91	1.42	0.73	0.15	1	-0.29	<b>3.92</b>	<b>1</b>
Rajasthan	0.43	-0.01	-0.58	0.05	-0.8	1.31	<b>0.40</b>	<b>7</b>
Tamil Nadu	-0.51	0.4	0.31	0.41	0.42	0.19	<b>1.22</b>	<b>4</b>
Uttar Pradesh	-0.79	0.02	-0.39	-0.83	-1.03	-0.39	<b>-3.41</b>	<b>14</b>
West Bengal	-0.32	-0.3	0.26	-0.63	-0.19	-0.38	<b>-1.56</b>	<b>12</b>

The data set for the year 2011 produces in the following table.

**Table 12. Construction of Inclusive Growth Composite Index**

Name of States	Economic	Amenities	HDI	GEFI	SUS	GOV	C Score	RANK
AP	0.89	0.32	-0.48	0.35	-0.43	1.16	1.81	<b>4</b>
Assam	-0.14	-0.58	-0.72	-0.99	0.41	-0.65	-2.67	<b>12</b>
Bihar	0.14	-0.61	-1.03	-0.58	-0.26	-0.69	-3.03	<b>14</b>
Gujarat	0.37	0.42	0.05	-0.08	-0.1	-0.2	0.46	<b>8</b>
Haryana	-0.08	0.68	0.2	-0.2	0.06	0.08	0.74	<b>6</b>
Karnataka	-0.50	0.03	0.09	0.49	0.03	0.34	0.48	<b>7</b>
Kerala	-0.08	0.24	2.52	0.88	1.14	0.4	5.10	<b>1</b>
MP	-0.40	-0.49	-0.9	0.14	-0.74	-0.5	-2.89	<b>13</b>
Maharashtra	0.09	0.15	0.88	0.68	-0.44	0.29	1.65	<b>5</b>
Odisha	-0.39	-0.59	-0.46	-0.6	0.47	0.74	-0.83	<b>10</b>
Punjab	0.27	1.04	0.55	0.05	1.45	-1.06	2.30	<b>3</b>
Rajasthan	0.26	-0.3	-0.72	-0.09	-0.73	0.5	-1.08	<b>11</b>
Tamil Nadu	0.33	0.14	0.76	1.03	0.36	0.32	2.94	<b>2</b>
Uttar Pradesh	-0.44	-0.16	-0.88	-0.49	-0.78	-0.54	-3.29	<b>15</b>
West Bengal	-0.36	-0.3	0.15	-0.47	0.54	-0.18	-0.62	<b>9</b>

Shift in Development Outcome: The composite index of inclusive growth 2011 disclose an interesting shift in development outcome. While the state of Kerala continue to dominate the overall ranking with huge human development index score which helped the state to overtake the state of Punjab to become the number one state in the Composite Index, states like Tamil Nadu, Maharashtra, West Bengal, Andhra Pradesh have made positive impact in their ranking due to different policy initiatives in the last decade fostering inclusive economic growth.

**Table 13. Comparison between 2001 and 2011: Composite Index for Inclusive Growth**

Name of the State	Composite Score	Rank	Composite Score	Rank - 2011
Andhra Pradesh	0.43	06	1.81	04
Assam	-1.43	10	-2.67	12
Bihar	-3.32	13	-3.03	14
Gujarat	0.40	07	0.46	08
Haryana	1.57	03	0.74	06
Karnataka	1.18	05	0.48	07
Kerala	3.17	02	5.10	01
Madhya Pradesh	-1.54	11	-2.89	13
Maharashtra	0.21	08	1.65	05
Odisha	-1.33	09	-0.83	10
Punjab	3.92	01	2.30	03
Rajasthan	0.40	07	-1.08	11
Tamil Nadu	1.22	04	2.94	02
Uttar Pradesh	-3.41	14	-3.29	15
West Bengal	-1.56	12	-0.62	09

The Kerala economy is also heavily benefited from the huge remittances from the overseas particularly from the Gulf countries.

## 5. CONCLUSION

This study perhaps for the first time in India a composite index has been constructed to diagnosis the state progress in mitigation of inequality and poverty through inclusive growth dynamics. The result can be interpreted to frame right kind of policy intervention that is necessary for revamping the lagging states in fostering inclusive growth. Inequality and poverty can be mitigated through a mix of inclusive growth policies. The result can be useful for

budgetary allocation to the states which are lacking in access to basic amenities. Further those state which are lagging in the index can attract huge investment to bridge the gap and foster expansion in production capacity. In brief the inclusive growth framework encompass the whole macro-economic management which attempt to reduce the inequality, urban-rural divides, expansion of human development, investment in human capital and all these need to be addressed through proper policy mix. Therefore it is important to enhance the capacity building of the people which is indeed the main objective of inclusive economic growth unlike the pro poor growth which ensured only the transfer of benefits to the poor through subsidies and other ways. The policy makers have to understand the undercurrent of different dimensions of inclusive growth before framing an appropriate policy mix for achieving the objective of inclusive growth.

This paper has thrown open some of the pillars of inclusive growth which a country like India needs to incorporate to ensure the active participation of lagging states in the development agenda. The inclusive growth model should accommodate the three pillars inclusion, governance and sustainability. This research paper made linear aggregation in the composite index which allows compensation of scores among the dimensions. For example, the outstanding score of the state of Kerala in the dimension of human development compensates the low score the state has achieved in the economic dimension. This problem of compensability can be removed if the aggregation method is changed. to multi criteria aggregation method which gives scope for further investigation in future studies. The much hyped government initiative “Make India” can use this composite index in boosting manufacturing industries in the lagging states so that the broad objectives of inclusive economic growth can be achieved and the balanced regional economic growth can become a reality. There are other drivers of inclusive economic growth such as technological changes, financial globalization, inflation, changes in labour market institutions, relationship between inclusive growth and the fiscal consolidation measures undertaken by government etc which have not been considered in this paper provide enough scope for future investigation.

#### REFERENCES

- Asian Development Bank (2013), *Framework of Inclusive Growth: Key Indicators for Asia and the Pacific*.
- Chandramouli, C. (2011), *Census of India 2011*, Government of India, Published by Narayan & Son, New Delhi, India.
- Ifzal, A. (2007), *Inequality and the imperative for Inclusive Growth in Asia*, *Asian Development Review*, Vol. 24, No. 2, pp. 1-16.
- Kuznet, S. (1955), *Economic Growth and Inequality*, *American Economic Review*, Vol.XLV, No.1, pp.1-28.
- McKinley, T. (2010), *Inclusive Growth Criteria and Indicators: An Inclusive Growth Index for Diagnosis of Country Progress*, ADB Sustainable Development WP series.
- Prabhu, K. S. and Sarkar, P.C. (1992), *Identification of levels of Development: Case of Maharashtra*. EPW, Vol.27, Issue 36.
- Rauniar G and Kanbur R (2010), *Inclusive Growth and Inclusive evelopment: A Review and Synthesis of Asian Development Bank Literature*, *Journal Asian Pacific Economy*, Vol.41, No.4, pp. 455-469.
- Ravallion, M. and Chen, S. (1997), *What can new survey data tell us about recent changes in distribution and poverty*, *The World Bank Economic Review*, Vol.11, No.2.
- Tabachnick, B. and Fidell, L. (2007), *Using Multivariate Statistics*, Harper & Row Publishers, New York, pp.746.
- Vellala, P., Madala, K. M. and Chhattopadhyay, U. (2014), *A Theoretical Model for Inclusive Economic Growth in Indian Context*, *International Journal of Humanities and Social Science*, Centre for Promoting Ideas, USA, Vol.4, No.13.